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COMPUTERWORLD

Unix net helps Fedex say 'no problem'

By Kim S. Nash
MEMPHIS

■ An extra-inning meeting makes you miss the regular pickup from Federal Express Corp. No matter. You call customer service, which reroutes a plane coming up from Memphis to make an anscheduled stop at your local airport. Your package will arrive on time after all.

That is one of the "no problem" scenarios Fedex hopes to create with a several-year client/server project said to be the largest Unix initiative in the world

With the first of three phases kicking off now, the 19-year-old company showcased the multimillion-dollar project at Comdex/Fall '92 last week. Fedex's ultimate goal is to lash together disparate customer service systems and overhaul package-tracking technologies.

The market-leading delivery company is working with Sun Microsystems, Inc., Hewlett-Packard Co. and 10 other hardware, software and consulting firms.

Fedex has "reached a self-imposed budgetary and personnel limit. Now we want to grow without adding more costs or people," said Dennis Jones, Fedex's chief information officer. Daily package volume has ballooned 16% to 20% an-

Fedex, *page 14*

Data center consolidation

Bank touts revamp as customer draw

By Maryfran Johnson
HARBORSIDE, N.J.

The moment a corporate customer steps off the elevator on the seventh floor at Bankers Trust Co.'s technology services center, the high-tech showmanship begins.

A curved section of wall slides open into a sleek customer briefing room, where gray walls disappear at the touch of a button. Suddenly, the customer is peering through floor-to-ceiling glass into the command center of the bank's new, fully automated IBM data center.

"This room shows our commit-

Bank, *page 8*

Banking on IS

Bankers Trust's re-engineering goals include the following:
- Eliminating inefficient operator procedures.
- Suppressing unnecessary console messages.
- Enhancing system monitoring facilities.
- Automating recovery of critical applications and program loading.

Warren Ousley *led the technology project at Bankers Trust*

Microsoft lays out tiered DBMS plan

Access gives end users programming tools

By Jean S. Bozman
LAS VEGAS

■ The Comdex/Fall '92 introduction of Access, Microsoft Corp.'s first homegrown database, marks the kickoff of a very broad client/server database strategy for the $2.8 billion software giant.

But the emphasis for the near term is on several client application development environments, or "frameworks," as Microsoft database designers continue to work on a new generation of database servers.

> Microsoft admitted last week to spending $20 million and three years on Omega, its first unsuccessful attempt to develop a database

The company plans to complete its database blueprint during the next two years by introducing several back-end servers. These include a 32-bit version of the Microsoft/Sybase, Inc. SQL Server for Microsoft's Windows NT operating system and a high-performance Indexed Sequential Access Method database engine based on technology gained from its Fox Software, Inc. acquisition.

Last week, Microsoft announced the first fruit of the June Fox merger, FoxPro 2.5, an enhanced Xbase database and query builder (see story page 14).

Microsoft must move quickly to make a dent in Borland International, Inc.'s dominance of the PC database market, estimated at 70% to 80%. Industry analysts said it could prove to be a tough fight, particularly because $480 million Borland has several databases and a high-end server in its Interbase relational database.

But Borland is somewhat vulnerable as it tries to ship Paradox for Windows and dBase for Windows in the coming weeks.

Microsoft may be six times larger than Borland, but it will still have to define itself in the PC database market to make headway against Borland, said Tony Picardi, director of software research at International Data Corp. in Framingham, Mass.

"First they have to decide what game they want to play," he said. "They could focus on database or middleware or on data-access lan-

Access, *page 14*

IBM mulls groupware strategy

By Rosemary Cafasso
LAS VEGAS

IBM said last week it is pulling together the pieces of a more cohesive OS/2-based workgroup strategy that will address issues ranging from very basic communications needs to more sophisticated collaborative computing requirements.

Currently, IBM offers some workgroup tools, from its LAN Server software to Notes and CC:Mail, two Lotus Development Corp. packages it began reselling last year. However, it has trailed behind the likes of Lotus, Microsoft Corp. and Borland International, Inc. in charting a specific, unified strategy for the workgroup market.

IBM is now evaluating a plan that would better position its current product lineup in the workgroup market as well as add workgroup products to it. Company officials insisted they have not made any final decisions nor set any delivery dates, but if the current options turn into product, they will include the following:

- The starting point would be a new version of OS/2 with basic peer-to-peer communications that would

IBM, page 24

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Comdex highlights

Photographer Chip Simons did Salvador Dali proud by capturing the surrealistic side of Comdex (see montage page 28). For a more conventional view, see pages 20, 24 and 29 covering pen-based computing, wireless networking, OS/2's future and the lighter side of Comdex.

Executive Briefing

A comprehensive guide to the week's news

RE-ENGINEERING

Federal Express and 12 computer vendors are implementing a real-time transportation-tracking and customer service system, which they claim is the largest Unix project in the world. *Page 1*

Users who are re-engineering networks alongside business processes cite management as their key hurdle. *Page 49*

CAREERS

Asked where they would most like to work, some 1,400 IS professionals surveyed by *Computerworld* went to extremes: Entrepreneurialism and IBM got the biggest votes of confidence. *Page 76*

OUTSOURCING

Will 1993 be the year outsourcing catches up with the major insurance firms? While vendors and industry observers say yes, insurance firms are keeping mum. *Page 6*

LEGAL ISSUES

Novell and Microsoft appear to be escalating the battle over NetWare connectivity in Windows for Workgroups and NT. *Page 6*

ENTERPRISE NETWORKS

DEC's OSI-based network architecture runs up against customer inertia, TCP/IP partisanship. *Page 8*

Cabletron's upcoming hub generation will serve both traditional LAN users and early ATM implementors. *Page 10*

COMDEX HIGHLIGHTS

Microsoft is positioning its overall database strategy to focus on front-end framework environments for application development. *Page 1*

IBM said it is evaluating a plan that would offer multiple OS/2 workgroup options. *Page 1*

IBM PC Co. displays "PS/3" and other coming technologies. *Page 29*

IBM begins to lay down its desktop operating system strategies. *Page 24*

Wireless has a debutante party at Comdex, but don't expect to see it married into everyday use soon. *Page 29*

Grid and AT&T unveilings boost pen market. *Page 20*

MANAGEMENT

If your manager has been jumping down your throat and placing unreasonable demands on you, don't take it personally. Managers are constantly grappling with pressures and worries that affect how they run their departments. *Page 89*

IS managers say small, specialized systems integrators can be just the ticket for small, specialized projects. *Page 77*

The latest Harris poll finds Americans are so worried about privacy that they believe the use of computers will need to be sharply restricted. Experts say the privacy issue should be the CIO's domain. *Page 12*

E-mail

Users can link E-mail systems without laying out big money for gateways using a new E-mail linking service from Pacific Bell *Page 49*

Putting together an E-mail privacy policy will go a long way toward ensuring acceptable E-mail practices and will likely keep your company out of court. *Page 85*

Interex (the HP user group) and the Aerospace Industry Association have crafted E-mail privacy guidelines that frown on monitoring mail for the purpose of discovering misconduct. *Page 87*

Expert systems

Fed up with swallowing $1.5 million in unbillable calls, the country's largest local phone company — Pacific Bell — is putting in an $800,000 on-line expert billing system to pursue freeloading callers and round up lost revenue. Meanwhile, IS head Eric Firdman is building and tending a bridge between the systems integrators and end users *Page 69*

Experts and expert systems are not always a quick or easy match. At one credit information organization, it took six months for the analysts to trust a new credit-reporting expert system — and another six months to like it. *Page 73*

Large systems

A large systems software salesman tells all. His advice to buyers is to negotiate the payment schedule, not just the payment, ask for service-level agreements; and always haggle for free training up front. *Page 97*

Viruses and security

Novell issues a security fix to plug holes in NetWare v3.11. *Page 4*

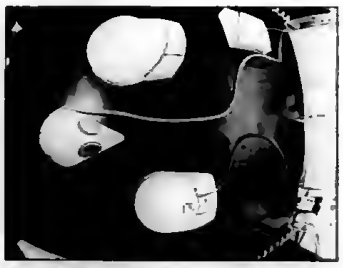
An antivirus utility for NetWare file servers is on the way from Fifth Generation. *Page 4*

The head of the U.S. Department of Justice's computer crime investigation unit has called for a strengthening of federal laws to fight new threats from computer viruses. *Page 15*

Network management

A consortium will work toward SNMP-based management of SNA devices. *Page 49*

Intel has started beta-testing its new LANDesk product.



Hickory dickory dock – *While the cat was away, photographer Chip Simons captured some of the Comdex wildlife on film. See page 28.*

a comprehensive management tool for Novell NetWare networks. *Page 46*

PCs

Macintosh users give Apple middling grades on a report card. *Page 39*

Logitech expands beyond the touchy-feely world of mice and scanners and goes for the sound experience with Audioman. *Page 39*

Lotus plans to ship Freelance Graphics for Windows next month. *Page 40*

Memory chip prices and installation challenges for OS/2 and Windows users are hot topics on the bulletin boards. *Page 41*

New hardware from NEC may help spark the pen-based computer market. *Page 41*

Microsoft's Windows NT, Windows for Workgroups and Borland's Interbase were on the minds of three of the PC industry's top players at a recent meeting. *Page 41*

Groupware

Xerox hopes to carve its slice of the groupware pie with its Unix-based office productivity applications. *Page 45*

Imaging

A small New York law firm is benefiting from a network integrated imaging system designed to provide staff members with instant access to optically stored case files. *Page 45*

DBMS

Sybase's new System 10 product line was intended to address user concerns about nuts and bolts IS issues such as performance, backup and recovery and duplication of critical data. Users said they had voiced these concerns to Sybase designers earlier this year **57**

Software AG tool allows automatic propagation of Adabas transactions to target databases across a network. **4**

To stir sales of its object oriented database, HP is repackaging the software so that users can buy less-expensive evaluation kits before committing to a whole developer's package. It has also loosened its licensing policy. **61**

Midrange

Wang Labs, fighting to reorganize under Chapter 11 bankruptcy protection, previews unannounced VS machines and unveils some long awaited Unix software **57**

While DEC sets a good tone with its Alpha release, recharged business practices and clear migration path, it is unclear whether the company will be able to press beyond its current user base. **61**

Supercomputers

Cray Research joined the roster of companies with massively parallel processing (MPP) supercomputers last week, announcing its first MPP system, which is due in 1993. **16**

Industry

Early-stage failures of technology start-ups are easily avoidable, according to Arlen Lessin, an adviser to high-tech entrepreneurs. What is needed, Lessin writes in an open letter to President-elect Bill Clinton, is a Head Start for fledgling enterprises. **35**

After Unisys posted its fourth consecutive profitable quarter, Reto Braun, the company's president and chief operating officer, said Unisys is "reinventing" itself as a services provider. **105**

IBM as an OEM? That is the likely outcome of a long-standing deal between IBM and Intel, according to IDC's John Gantz. And when IBM becomes a purveyor of chips, customers had better be ready for other big changes. **35**

Most observers say the U.S. computer industry spends enough on research and development, but some say the money could be spent in better ways. Meanwhile, R&D partnerships are increasing **33**

DEC loses a software VP, and its software strategy may suffer as a result. **8**

Application development

A pilot application redevelopment project has given Arizona State University room to breathe and has also cut its energy wasted on maintaining its old programs. **63**

Commitment to software productivity tools helps an oil distributor run a $3 billion business with an IS staff of four. **63**

The downward push toward PCs is in the forefront at development tools vendor company Intersolv. **63**

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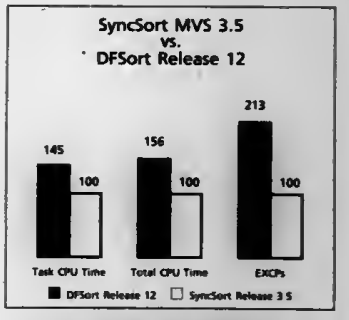

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Software AG tool mirrors Adabas across networks

By Gary H. Anthes
RESTON, VA

Software AG of North America, Inc. last week unveiled software that will automatically replicate Adabas transactions across networks of heterogeneous computers.

It was designed for distributed applications in which all or portions of a mainframe database must be mirrored at other sites or in other processing environments but where absolute synchronization of databases is not required.

Called the Entire Transaction Propagator, the software tool will send updates from Software AG's Adabas database management system, at user-specified intervals, from mainframes to remote databases running on other mainframes or to Unix, OS/2 or VAX/VMS platforms. The user can specify which updates are sent to which locations, and if a target node is unable to accept the transaction, the transaction is logged and sent again later.

Mike Schiff, director of the data management program at Software AG, said the new product exacts much less of a performance penalty than does the "two-phase commit" technology often used in real-time distributed applications such as funds transfer. He said 80% of distributed applications do not need to ensure that source and target databases are updated simultaneously, a requirement that adds much processing complexity.

Doubling up
The database server segment of the superserver market is expected to grow at a compound annual rate of 51% through 1996, fueled primarily by the emergence of distributed database requirements, according to Brad Day, principal analyst at Dataquest, Inc.

"Users are insisting on this," said Richard Finkelstein, president of Chicago-based Performance Computing, Inc. He agreed that most users do not need the absolute synchronization offered by other database vendors such as Oracle Corp. and Sybase, Inc. He said a large Oracle user told him recently that his company could not afford to stop processing everything whenever a node went down.

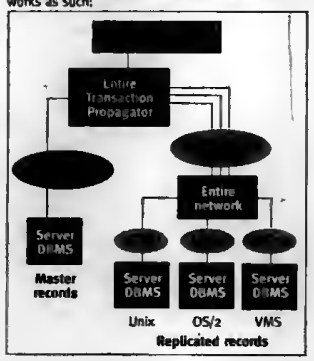
"For them, it is more important to keep processing and less important to have everything synchronized," Finkelstein noted.

Beta-test user Frank Stromboe, director of information services for the city of San Antonio, said the city will use the product in its 911 emergency dispatching system. The application maintains a master database of names, addresses and related information on an Amdahl Corp. mainframe. Periodically — roughly every 10 minutes — a CICS program running in the background will take new updates and send them to a pair of NCR Corp. 3450 minicomputers, which are used by emergency dispatchers.

Stromboe said the alternative to using the Transaction Propagator would have been to put together a manually invoked batch process. "It might work 99% of the time, but there's that 1% chance that they would look at an address and it would be wrong," Stromboe said. "It might be a life-and-death situation."

The product will ship by year's end and will be priced between $7,600 and $113,500.

Software AG's Entire Transaction Propagator works as such:



Antivirus utility for NetWare servers due

By James Daly
BATON ROUGE, LA

Users of Novell, Inc.'s NetWare will gain an added layer of network security armor today when Fifth Generation Systems, Inc. unveils a NetWare Loadable Module (NLM) designed to protect Intel Corp. 80386-based file servers running NetWare from both known and unknown viruses.

The Untouchable Network NLM will use a multipronged security approach to detect and eradicate viruses, Fifth Generation officials said.

During the initial program installation, Untouchable Network NLM scans and flushes out more than 1,500 known viruses, including self-mutating viruses and viruses located on compressed and archived files.

Another equally important facet of protection occurs during this phase: Untouchable Network NLM fingerprints and registers all executable files on the server, then stores this information in the protected DOS partition area.

If a virus is later detected, the product uses this database of file signature information as a reference to reconstruct infected files to their former healthy state.

Unlike other NLM antivirus methodologies, Untouchable Network NLM will not need to know a new virus' signature before it can protect users from the malicious code. Instead, the utility employs a method called integrity checking, which looks for the changes in executable code in application files that betray all viruses.

Thus, network administrators can avoid the headache of frequent virus signature updates.

Untouchable Network NLM is slated to be available by the end of next month at a suggested retail price of $995 per server. A bundled package of Untouchable Network NLM for file server protection with a 10-node starter kit for workstation security can be had for $1,295.

Novell issues network security patch

Device will guard against LAN break-ins but not careless users

By Michele Dostert
PROVO, UTAH

Novell, Inc. has issued the first part of a two-phase patch to its NetWare v3.11 network operating system designed to plug up the security holes discovered last month in a Dutch laboratory.

Workers in that laboratory discovered that if a user could log on to a NetWare local-area network in any capacity, even the "guest" account commonly established on LAN servers, the user could then forge supervisory privileges on the LAN. This would then allow the trespasser to roam the LAN at will, deleting, copying or altering any data he chose.

By popular demand
A Datapro Information Services Group survey of 1,102 security professionals found that the most popular network security mechanisms currently implemented in the U.S. are commercial and in-house access control software and dial-up port protection.

In response, the first phase of the patch, which is now available, consists of a NetWare Loadable Module (NLM), a new user shell and several new utilities.

The user shell generates 16 bytes of information that are appended by the NLM to the packets as an 8-byte NetWare core protocol signature. The NLM uses a security algorithm, licensed from RSA Associates in Sunnyvale, Calif., to add that "signature" to each packet.

Each packet's signature depends on the previous packet, so an intruder could not simply capture a single supervisor's packet and then forge the signature.

Good practice

"The Netherlands break-in was actually good for us: It showed us the holes in a laboratory setting, and we used the information to design the current patch," said Jan Newman, Novell's vice president of systems. He claimed that "none of our users had problems because of it."

Although the problem was first discovered on a NetWare LAN, industry experts said all LAN operating systems are vulnerable to the same kind of forgery.

Novell said it will share its research and information with other LAN vendors so that LANs as a whole will not be vulnerable to attack.

According to Newman, the second phase of the security patch, which will be available sometime in 1993, will be a packet encryption solution that will encrypt the data traveling across LAN cable.

This will guard against intruders who physically tap into LAN cables or intercept wireless transmissions, collect packets and then decode them.

Novell said it will share its research and information with other LAN vendors

"Intruders will be able to decode the protocol types but not the data in the packets themselves," Newman said.

While users welcomed Novell's security patch, most said their biggest security breaches come from their own users.

"I'm not worried about the determined hacker or someone tapping into my cable; I worry about the user who gives someone else his password," said Gregg Scott, network manager at Oregon State University in Corvallis, Ore.

James Shipp, an MIS engineer at WordPerfect Corp. in Orem, Utah, agreed. "It's people walking away from their desks without logging out, people who don't change their passwords — those are the most common security threat."

REFERENTIAL INTEGRITY

SYBASE

200 LINES OF PROPRIETARY CODE

```
/* Make sure deleted manager does not have any
/*Prohibit updates to the deptno foreign key in the emp table
(select count(empno) from inserted
CREATE TABLE dept
        (deptno int not null,
        dname char(14) not null)

CREATE UNIQUE INDEX dept_primary_key ON dept(deptno)

CREATE TABLE emp
        (empno int not null,
        mgr int null,
        deptno int null)

CREATE UNIQUE INDEX emp_primary_key ON emp(empno)

CREATE TABLE proj
        (projno int not null,
        budget float null,
        deptno int null)

CREATE UNIQUE INDEX proj_primary_key ON proj(projno)

/*  Make sure deptno column of inserted emp rows is either null
    or specifies an existing department. Also make sure that
    mgr column of inserted emp rows is either null or specifies
    an existing manager  */

create trigger emp_insert
on emp
for insert as
        declare @row int
        select @row = @@rowcount /* rowcount will get changed */
/*  check "emp deptno <--> dept deptno" foreign/primary
            key relationship */
        begin transaction
        if
            (select count(empno) from inserted where
                inserted.deptno is null)
            +
            (select count(deptno) from inserted
                where inserted.deptno in
                (select deptno from dept)
            < @row
        begin
            raiserror 22220 "emp row specifies non-existent department"
            rollback transaction
        end
/*  check "emp mgr <--> emp empno" foreign/primary key relationship */
        else
        if
```

*Program code independently written and tested.

ORACLE7

12 LINES OF INDUSTRY STANDARD SQL

```
CREATE TABLE DEPT
   (DEPTNO NUMBER(2) PRIMARY KEY,
   DNAME CHAR(14) NOT NULL);

CREATE TABLE EMP
   (EMPNO NUMBER(4) PRIMARY KEY,
   MGR NUMBER(4) CONSTRAINT mgr_fkey REFERENCES EMP,
   DEPTNO NUMBER(2) CONSTRAINT dept_fkey REFERENCES
DEPT);

CREATE TABLE PROJ
   (PROJNO NUMBER(4) PRIMARY KEY,
   BUDGET NUMBER(7,2),
   DEPTNO NUMBER(2) CONSTRAINT pdept_fkey REFERENCES
DEPT
      ON DELETE CASCADE);
```

These two programs do exactly the same thing: direct the server to enforce business rules to ensure data integrity. Oracle does it in 12 lines of industry standard SQL. Sybase requires 200 lines of their vendor proprietary language, Transact-SQL™. If productivity is important to you call 1-800-633-1071 Ext. 8186 for a free copy of "Client/Server Database: Getting it Right" by programmer productivity expert Steve Schur.

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News Shorts

Oracle 7 for VAX due in December

Oracle Corp. managers told an East Coast Oracle user group last week that production versions of Oracle 7 will arrive next month for Digital Equipment Corp. VAX/VMS machines and in February for Unix machines. Oracle said last month that it had shipped its Oracle 7 to a small number of selected user sites. But most Oracle 7 code in user hands was shipped with the developer's copy released this fall.

Reeling Sequoia posts loss

Beleaguered fault-tolerant vendor Sequoia Systems, Inc. last week announced a net loss of roughly $9.19 million for the first fiscal 1993 quarter on revenue of only $9.9 million. About $3 million of that was restructuring fees to cover staff cuts of around 25%. Sources said that Hewlett-Packard Co. may acquire more Sequoia stock — it currently holds 8% — to infuse cash into its strategic partner. But Sequoia officials would only say that they are talking with their partners in an effort to bring in badly needed capital. A rumored sale of the entire company to HP is unlikely because of potential liabilities as a result of a class action suit filed by Sequoia's shareholders. The shareholders are suing for damages as a result of Sequoia's restatement of financial results for 1992. A third and final restatement of those 1992 figures will be released within a few weeks, Sequoia officials said.

Nynex drives ISDN golden spike

Nynex Corp. has gained Federal Communications Commission approval to deliver the first regional Integrated Services Digital Network (ISDN) service to hook up to long-distance carriers' ISDN connections. The service will be the first to make use of National ISDN-1 standards that enable local and long-distance carriers' ISDN switches to communicate. When all carriers implement the standard, users will be able to set up switched voice, data and video ISDN links from one end of the country to the other. Formerly, regional operating companies' ISDN services were restricted to a given local access and transport area, and long-distance ISDN services did not extend over the local loop, forcing customers to use dedicated lines for that segment of the link.

SHORT TAKES **Dun & Bradstreet Software** began shipping host-based financial applications for Unix systems from **Data General Corp.**, **Hewlett-Packard Co.** and **ICL**.... Fast food giants **Taco Bell Corp.** and **KFC Corp.** last week announced an agreement to develop a point-of-sale computer automation system with **SHL Systemhouse, Inc.**... **DEC** was selected by **Chevron Corp.** for a two-year, $5.8 million project to automate business and accounting practices at 875 of Chevron's Food Mart convenience stores and gas stations in the U.S.... **NCR Corp.** has kicked off a program to provide its resellers with financial and other incentives to migrate AT&T 3B2 and NCR Tower systems users to NCR System 3400 servers.... **Sybase, Inc.** has agreed to make the Sybase SQL Server relational database management system and related software available on Unisys' U6000 Unix servers beginning in the first half of 1993.... **The ASK Group, Inc.** announced Release 9.0 of its 18-year-old MANMAN manufacturing application software. The VAX version has a new quality-measurement software module that stores data in DEC's Rdb relational database.... **Sybase** announced Ada Workbench, a graphical user interface framework that lets users code Sybase database applications in the Ada language.

News shorts, *page 16*

Microsoft, Novell square off

By Michele Dostert

■ Novell, Inc. and Microsoft Corp. are both downplaying their current squabble over the insertion of NetWare client code into Windows for Workgroups, but behind the scenes, the two are reportedly considering their legal options, according to a source close to both firms.

Novell last week confirmed that it sent a letter to Microsoft officially canceling an agreement to let Microsoft use Novell's NetWare client code.

Microsoft Chairman Bill Gates, meanwhile, when questioned at Comdex/Fall '92 regarding the dispute, appeared unruffled by the legal maneuvering. "Microsoft is committed to offering easy NetWare connectivity in both Windows for Workgroups and Windows NT. We would like to work it out with Novell, using their code and joint support, but we will do the NetWare client ourselves or license from third parties if we have to," he said.

The NetWare client code currently shipping in both Windows and Windows for Workgroups consists of Novell's IPX networking protocol and parts of the NetWare core protocol that allow the client to be recognized by and communicate with NetWare servers. While Microsoft could easily emulate or license an IPX stack, the rights to the NetWare core protocols are tightly held by Novell. It would be difficult for Microsoft to duplicate them without risking patent infringement.

The dispute surfaced early last month, the week before Windows for Workgroups was scheduled to begin shipping. Novell's position is that while it has supplied the NetWare client code to Microsoft free of charge for inclusion in Windows 3.1, the company claimed it never agreed to its insertion into Windows for Workgroups. Novell maintains that both Windows for Workgroups and the forthcoming Windows NT product, because of their built-in networking capabilities, are not the same products as Windows.

"I see why Novell thinks WFW and Windows NT, with their networking capabilities, are threats to NetWare, but I think they're wrong," said Craig Burton, president of the Salt Lake City-based local-area network industry analyst firm The Burton Group and a former Novell executive.

"Nobody's going to pull out their familiar, powerful NetWare just because they now have WFW or Windows NT as their desktop environment. Novell should stick to their plan of supporting all the clients that its customers use and resolve this thing quickly," Burton said.

Dwayne Walker, director of Windows NT and networking products at Microsoft, said the two firms were continuing discussions. "Neither one of us would move down any kind of path that would jeopardize our technologies working together," he said.

However the dispute is resolved, there is the question of what to do about the copies of Windows for Workgroups that have already shipped with Novell code. Neither Novell nor Microsoft, both of which are trying to keep the dispute under wraps, would address this issue.

Insurance eyes outsourcing

By Nell Margolis

Are the nation's insurance giants about to break their unspoken taboo against information systems outsourcing?

Outsourcing vendors say yes, and industry observers increasingly agree, but to date, no major life insurance player has given up a piece of its IS rock to an outsourcer.

"Sure, we look at outsourcing IS," said Lawrence Bacon, chief information officer at Hartford, Conn.-based The Travelers Corp., which is planning to cut up to 25% of its IS staff as part of a corporatewide downsizing effort.

Other insurance firm IS executives — for instance, New York Life Insurance Co.'s John Foy — echoed Bacon's words.

Loss of control feared

But while interest is high, noted Suzanne Lattimore, executive director of the Data Processing Management Association, "There's still a lot of concern that outsourcing means loss of control over big, complex systems that are the life blood of policy processing." Lattimore is a former director of information support services at Nashville-based American General Life & Accident.

"All the symptoms of an industry niche about to outsource are there," said J. P. Richard, outsourcing analyst at Vienna, Va.-based market research firm Input. These include profits under extra pressure from the prolonged recession and brutal competition as firms scramble to top one another's service levels in a market where product differentiation is hard to come by.

Similar factors have turned large banks into a gold mine for outsourcing vendors during the past several years.

There is evidence aplenty that vendors and analysts believe insurance outsourcing is about to take off:

- IBM outsourcing subsidiary Integrated Systems Solutions Corp. (ISSC) has teamed with Columbia, S.C.-based insurance software vendor Policy Management Systems Corp. (PMSC) to launch an outsourcing joint venture targeted at large insurance firms.
- Electronic Data Systems Corp. has an approximately 1,000-person special business unit aimed at life, property and casualty insurance firms and a unit twice that size to serve the health insurance market.

> Insurance firms spent $693 million on outsourcing over the last two years, compared with $1.06 billion spent by financial services firms

Firms will eventually fall into these and other waiting arms, said Mark Hodges, a principal at Mountain View, Calif.-based G2 Research, Inc. "But not necessarily as quickly as some think," he said. Early adapters of information technology and widely seen as still in the vanguard, huge insurance firms are more apt to view their IS operations as a route to increased efficiency than as a roadblock, he noted.

The first flurry of demand is likely to come from the health insurance community, particularly as the coming Clinton administration begins to act on its mandate to address the nation's health care crisis, Hodges said.

ISSC Marketing Vice President Ed Archer agreed. The ISSC/PMSC joint venture has already made one big health insurance score: a $52 million outsourcing and co-development deal with Blue Cross/Blue Shield of New Jersey, signed in August. What's more, "not a day goes by that I don't get a call from a health insurance provider inquiring about managed care opportunities," Archer said.

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DECnet for OSI runs into TCP/IP roadblock

By Elisabeth Horwitt
MAYNARD, MASS

Digital Equipment Corp.'s decision some years back to embrace openness through the Open Systems Interconnect (OSI) standard has resulted, after many years of labor, in a network architecture that essentially is almost as closed as its predecessor. The reason: The industry seems to be moving en masse toward Transmission Control Protocol/Internet Protocol (TCP/IP).

"If you're a DEC customer attracted to DECnet Phase V features such as distributed naming [of network nodes], your problem is that Phase V does not connect your DEC systems to Unix or local-area network environments," said Rick Villars, a director at International Data Corp. in Framingham, Mass. "TCP/IP does."

DEC is in the process of making functions friendlier for beginners

Several DEC customers said that while they like several of DECnet Phase V's sophisticated features, they have neither the time nor any immediate pressing need to implement a new, complex network architecture.

"It's sitting under my desk in a box with the shrinkwrap on it so the dust won't get in it," said Jim Hendricks, senior telecommunications analyst at Tyson Foods, Inc. in Springdale, Ark. He said he expects to install Phase V "within the next year or two, or as soon as a major application comes along that needs Phase V capabilities."

"DECnet Phase V has nothing that will force us into it today," said Leslie Moltz, director of computing and communications resources at Stevens Institute of Technology. "DECnet IV is working, and the first round of anything is suspect; we'll let someone else be first on the block."

Several network managers complained that Phase V's greater sophistication means an unwelcome increase in administrative overhead. "Phase V has a lot of great new functions, all of which you have to administer even when you don't need them," said David Osterman, chairman of the University of California Lawrence Livermore National Laboratory's network advisory group.

"For us, [DECnet Phase V] is a way to get our feet wet with OSI" while continuing to migrate the majority of systems to TCP/IP, said Sholom Bryski, managing director of distributed systems and networks at Bankers Trust Co. Bryski was one of several users to praise DEC for providing application interoperability and portability across DECnet IV, OSI and TCP/IP under the DECnet V umbrella. "Then, if the world ever goes from IP to OSI, as DEC originally intended, we're ready."

According to Henk Hazelhoff, associate consultant of corporate information systems at Dow Chemical Co., Dow "believes that OSI, in the longer term, will turn out to be the better choice" as a standard. "IP is there and easy to implement, but it's less sophisticated."

The need to support Government Open Systems Interconnect Profile coupled with insufficient Phase IV address space is driving Lawrence Livermore toward DECnet Phase V, Osterman said.

However, even government users are finding ways to support TCP/IP rather than pure OSI, Osterman said. "I think DEC now regrets its decision to go with an OSI-based open network architecture," he added. "Now they're the only vendor keeping OSI alive."

DEC exec's exit spurs software concerns

By Melinda-Carol Ballou
MAYNARD, MASS

■ The departure earlier this month of David Stone, Digital Equipment Corp.'s vice president of software, for a position at AT&T has some people both outside of and within DEC wondering how its software group will fare during the company's ongoing reorganization.

Sources close to the company said a number of office automation packages will be among the first to be cut back. Moreover, up to 1,000 employees in software could lose their jobs next month amid continuing personnel reductions.

While DEC's vision on the software side has often been unclear, it was galvanized by Stone.

Many DEC software employees are "stressed and nervous" now, following Stone's departure, according to one internal source.

Mr. Nice Guy

Stone's replacement, Dennis Roberson, is well-respected in the software group and has committed to follow through on Stone's plans to run software across platforms and push forward on Network Application Support (NAS), groupware and commercial applications, sources said.

But some observers said they feel that he is "too nice" to be able to address political conflicts as the company is restructured.

Roberson has his work cut out because budgets have already been finalized. The approximately 1,000 employees expected to be laid off on the software side alone by the middle of December will primarily come from research and development, sources said.

Also in the works are plans to cut future development on a number of packages, including DECwrite and DEC present office automation.

VAXset and DEC Rally development tools are expected to fall under restricted development budgets, sources said. A DEC spokesman denied that such plans have been made at this point.

Rdb plans vague

Plans for a commercial database strategy for DEC's Rdb remain foggy. Although DEC emphasized its commitment to Rdb by announcing a decision to port it to Microsoft Corp.'s Windows NT last week and by hiring more Rdb engineers, DEC decimated its marketing group several months ago, and replacements have yet to be assigned.

This is an "unsupportable" situation if DEC is to compete with the well-oiled marketing machines elsewhere in the relational database management system market, said Lynn Berg, a director at Gartner Group, Inc., a market research firm in Stamford, Conn.

Bank touts revamp as customer draw

CONTINUED FROM PAGE 1

Quick benefits

Substantial time savings and enhanced system monitoring were two immediate benefits from Bankers Trust's use of Candle's AF/Operator, Omegamon for CICS and OmegaView. Messages from IBM's CICS are captured with AF/Operator, while Omegamon for CICS picks up other system alerts. The two are combined and displayed by OmegaView as a graphic showing the "health" of the CICS region.

ment in technology," said Warren Ousley, managing director of the technology center. "We're trying to demonstrate to customers how our technology works on their products. We're putting our money where our mouth is."

Banking executives and consultants agree that corporate financial customers today — especially in trust or cash management services — have to ensure that an operation "is a world-class user of technology," said George DiNardo, a partner at Coopers & Lybrand's financial services consulting group.

In the next four to six months, Bankers Trust will complete a merger of its IBM facility with its Digital Equipment Corp. data center, which is located across the Hudson River in New York. The merger will be more virtual than physical, with more than 50 VAXs remaining in their current home.

Data center resources will be transparently accessible to users over a Fiber Distributed Data Interface (FDDI) network, and protection against data loss will be insured by Micro Technology, Inc.'s FailSafe RAID-5 disk array.

By automating and merging the data centers, the bank will save money and be able to service its customers more quickly, Ousley said. "Bankers Trust has automated just about every possible function in the data center, ranging from system management to tape management of silos," he said. "It's the whole gamut — from soup to nuts."

Ousley would not discuss any financial aspects of the automation and merger project, but he did say that the year-long data center automation was "cost-justified." System reliability and availability have improved sharply, while a 20% to 30% staff reduction trimmed data center operations costs.

Another driver behind the automation project was "cost avoidance," as the increasingly complex environment was bound to require a larger data center staff down the road. "We wanted to grow MIPS, not people," Ousley said.

Now managing a trio of IBM Enterprise System/9000 systems are four IBM Personal System/2s running system operations software, automation applications and utilities supplied predominantly by IBM and Candle Corp.

The re-engineering work got under way in October 1991, with the bank's team of technical managers working closely with the two vendors in the complex ordeal of automating a diverse collection of system software onto the common platform of IBM's NetView.

By the end of next month, the combined data centers will share a collection of nine Storage Technology Corp. automated tape libraries or silos, using software and hardware supplied by DEC and Storage Tek.

"To the best of our knowledge, this level of complexity in sharing everything between DEC and IBM has not been done before," said Peter Coriasco, a vice president from the DEC side of the technology center.

Consultants who follow the financial services industry said Bankers Trust's creation of a technology "war room" for customer briefings is a practice still rare in banking. The concept has long been popular, however, with the major system vendors and outsourcing firms.

"Banks haven't really considered themselves to be selling technology as much as financial products dependent on technology," said Ladd Willis, executive vice president of First Manhattan Consulting Group in New York.

Yet Bankers Trust and competitors such as Chemical Banking Corp. are clearly changing that scenario, Willis added, as the task of marketing specialized services such as funds transfers, securities processing and cash management requires a tighter alliance between business and technical units.

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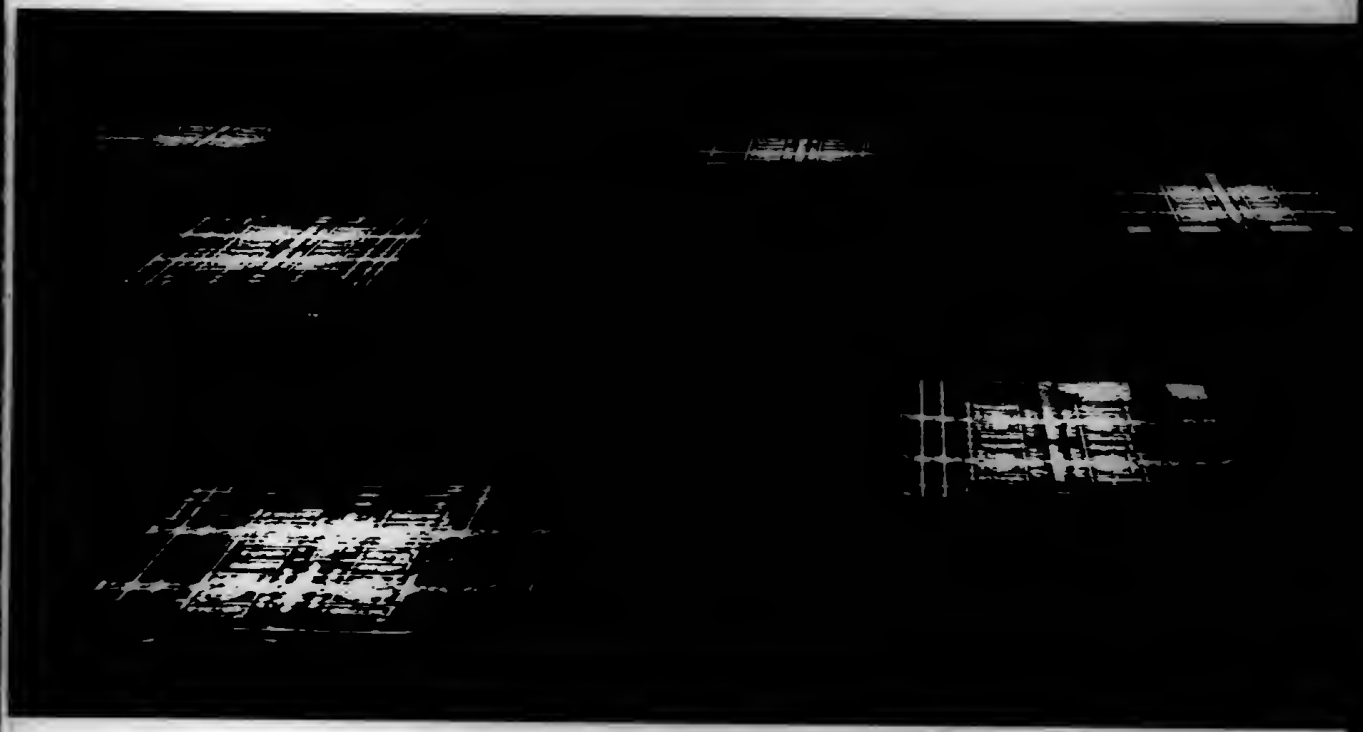

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Cabletron offers ATM migration

By Elisabeth Horwitt
SOCESSTES, N A

Cabletron Systems, Inc. last week disclosed a migration strategy that includes some shrewd bet-hedging in terms of how quickly users will decide to turn in their trusty old local-area network cards for exciting but expensive new technologies such as Asynchronous Transfer Mode (ATM).

A product rollout slated to start in April will provide Cabletron hubs with ATM support and the ability to offer a major throughpnt boost to users' existing LAN cards, according to company spokesmen.

The hub vendor announced its entry into the ATM market through an agreement to remarket Fore Systems, Inc.'s ATM switches, which are said to support 2G bit/sec. throughput. In addition, an ATM card slated for April 1993 shipment will enable Cabletron Multi Media Access Center (MMAC) hubs to send ATM packets to a Fore Systems switch at speeds of 100M bit/sec. or 140M bit/sec., a Cabletron spokesman said.

Cabletron user Blue Cross/Blue Shield of Connecticut likes the idea of the vendor's providing both integration and — through its Spectrum platform — network management of "a bunch of plug-in components that we'll need [to meet users' future networking requirements] in intelligent progression," said Graham Morrison, project leader for network design and engineering at the health insurer. Blue Cross/Blue Shield plans to start looking seriously at ATM next year, he added.

Networking

Cabletron will not be Blue Cross/Blue Shield's only option. Synoptics Communications, Inc., Cabletron's chief rival, spent $10 million during a three-year period developing its own ATM technology, which will come to market sometime next year, said Paul Callahan, a senior analyst at Forrester Research, Inc., a Cambridge, Mass., research firm. Ungermann-Bass, Inc. is working with BBN Communications on ATM technology spanning the local- and wide-area networks.

For those users who are not ready to throw ont their old LAN boards, Cabletron announced that its next generation of hubs, due out next spring, will provide each Ethernet user with a dedicated 10M bit/sec. connection. The hubs will nse ATM technology to handle the multiple 10M bit/sec. links without degradation; however, users will be able to employ their existing Ethernet cards, the spokesman said.

Duplex Ethernet

Cabletron's new hubs will also allow Ethernet LAN devices to support full-duplex Ethernet — 10M bit/sec. sending and receiving simultaneously — by eliminating the need for LAN devices to keep watching for collisions, the spokesman said.

However, users will have to trade their old LAN cards for new, Cabletron-supplied cards to gain this feature, he added.

A third key feature of Cabletron's npcoming hub generation will be Secure Fast Packet Switching, which is said to incorporate a variety of filters to ensure that users access only those networks and networked resources to which they are entitled.

Blue Cross/Blue Shield is interested in Secure Fast Packet Switching as a way to allow customers to access their own medical histories and insurance data on the network and still assure them that "your data is safe with us," Morrison said.

Cabletron will also provide "feeder node routing," in which MMAC hubs will be able to feed data to multivendor routers via industry staodards such as Point-to-Point Protocol, the vendor said.

The routing feature will enable the hub to intelligently handle protocols such as Transmission Control Protocol/Internet Protocol, which minimizes broadcast storms and other problems that beset bridges.

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Public: 'Computers invade privacy'

By Mitch Betts
WASHINGTON D.C.

The vast majority of Americans believe computers have improved the quality of life and customer service, but they are also extremely worried about the lack of privacy in the computer age, according to a nationwide poll slated for release this week.

In fact, more than two-thirds (67%) of the public agreed with the statement, "If privacy is to be preserved, the use of computers must be sharply restricted in the future." The poll was conducted by Louis Harris and Associates, Inc. in New York.

For professionals who build computer applications, the overriding message from the poll results is that unless privacy safeguards are built into systems, a severe public backlash against computerization is possible, experts warned.

The poll comes at a time when the American public has been deluged with reports of easy access to credit reports, computer hackers, proliferating consumer databases for targeted marketing and "information brokers" who buy and sell personal data.

Computer professionals need to have the same strong conviction about information privacy as the medical profession has about medical confidentiality, said Gwen Bell, president of New York-based Association for Computing Machinery, Inc.

She added that curtailing the use of computers is not the answer to the privacy problem. "We didn't stop the automobile because there were car accidents. It has taken us a while to get air bags and other safeguards," Bell said.

Losing control

The answer is for businesses to give consumers more control over how information about them is used and circulated, said Mary J. Culnan, associate professor of business administration at Georgetown University. The Harris poll found that 76% of Americans believe they have lost all control over personal information.

Giving consumers more control means giving them easy ways to "opt out" of direct marketing campaigns and correct errors in credit databases, as well as other "fair information practices," Culnan said.

In some cases, the only thing companies have to do is provide a check-off box on order forms so that consumers can elect not to have their names and data sold to third parties. But it may require passage of federal legislation that codifies those fair information practices before consumers have real privacy rights that can be enforced, Culnan said.

Most information systems professionals duck the privacy issue, Culnan said [CW, June 3, 1991]. She maintained that information privacy is a business issue that should be part of the chief information officer's domain "if CIOs really want to be serious players in the executive suite."

Companies that roll out products or services that fail to respect privacy sometimes find that consumer protests force them to retreat at a financial loss. Lotus Development Corp. withdrew its Marketplace CD-ROM of consumer data after widespread protests, and Citicorp is terminating its frequent-shopper database because of privacy and business problems, Culnan said.

"The companies who design their systems and practices to maximize privacy for consumers" and quality service will have an advantage in the marketplace, said C. B. Rogers Jr., chairman and chief executive officer of Equifax, Inc., a credit and demographics information service. Equifax, based in Atlanta, sponsored the Harris poll.

Alan F. Westin, a professor at New York's Columbia University who developed and analyzed the survey, said Americans' ambivalence about computers is quite rational.

"The public can perceive both positive benefits in their daily lives from the swift and customized consumer services they now enjoy," Westin said, "but also worry about the accumulation of too much information, erosion of confidentiality and threats to information security that they see taking place in the mid-1990s."

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Microsoft lays out tiered DBMS plan

CONTINUED FROM PAGE 1

At a glance

Access involves users in the IS programming process.

It gives users a building-block approach to writing database queries and reports and gives programmers a language similar to Microsoft's Visual Basic, called Access Basic.

Access has special modules called "wizards" to help users create and modify database forms and reports. There are "cue cards" for on-line Help, as well as macros for routine database query routines and support for a version of Visual Basic.

Access Basic also contains its own relational database engine.

guages."

"I don't expect [Microsoft] to be the dominant player in database, but I do expect them to be a thorn in Borland's side," said Tim McCollum, a research vice president at Dean Witter Reynolds in New York.

So far, Microsoft has delivered three of four targeted application development frameworks for different types of programmers: Access for end users; Visual Basic for programmers, which will be blended with the Access database query language; and FoxPro 2.5 for Xbase developers.

A fourth environment for C programmers will appear in late 1994, said Charles Stevens, business unit manager for Microsoft's Database Products Division.

Other options

Even without a broad range of homegrown database servers, Microsoft applications can address other vendors' databases through Microsoft's Open Database Connectivity (ODBC) programming interface. Already, more than 40 vendors have signed up for ODBC, including database makers Oracle Corp., The ASK Group, Inc.'s Ingres Products Division, Informix Software, Inc. and Sybase.

Access can link directly to several databases: Microsoft's SQL Server for OS/2, Borland's dBase and Paradox, and Novell, Inc.'s Btrieve. Microsoft said it plans to support Oracle 7 sometime in early 1993.

A more important issue for Microsoft is that back-end database servers have already proved a formidable challenge. Microsoft admitted last week to spending $20 million and three years on Omega, its first, unsuccessful attempt to develop a database. Next came the Cirrus project, which produced Access. Microsoft Chairman Bill Gates reportedly did not think Omega had enough unique features to be a commercial success.

Database development woes also appear to have stalked the Access project. Originally scheduled for June, Access' formal release was delayed until Comdex last week for technical reasons.

"The good news is that it will empower users who are demanding access to corporate data," said Peter Kastner, a vice president at the Aberdeen Group in Boston. "The bad news is that Access alone should not be viewed as a tool that can craft all the applications in an enterprise."

Programmers may need to write C programs or use database-specific tool kits to take advantage of database-specific features such as stored procedures and triggers in relational databases, analysts said.

Ready to experiment

Some Microsoft users said they are eager to try out Access' modules, which are aimed at various levels of programmer skills.

"I'm going to buy a couple of copies to see if everything in the specs holds true," said Michael Fitzmaurice, MIS director at the National Association of Broadcasters in Washington, D.C., which has a Microsoft SQL Server for OS/2 and a Sybase database on its Novell local-area networks.

"An end user could design the forms and reports by himself, then ask us to wrap some more code around that," he said.

Bankers Trust Co. is likely to team Access end users with business unit developers, said Jon Lonoff, assistant vice president at the New York bank's Technology Strategic Planning Group.

"End users aren't going to go off and buy this on their own," Lonoff said. "Eventually, they'll talk to the developers because they're going to need IDs to reach the target databases."

FoxPro 2.5 gets thumbs-up

Microsoft's demonstration of the soon-to-be released Version 2.5 of its FoxPro database drew applause from the Comdex audience.

Dave Fulton, founder of Fox Software, Inc. and now database architect at Microsoft, showed off new FoxPro features to the appreciative crowd. Among the additions were the following:

- A completely Windows-hosted environment.
- Support for running dBase III and FoxPro applications unmodified.
- The ability to "Windowize" DOS-based FoxPro applications, making them more graphical without the user's having to change any code.
- Speed improvements on the order of three to eight times.
- Dynamic Data Exchange and Object Linking and Embedding support.

"If I was still at Fox, I'd ship it in the next two weeks," Fulton said. The product is scheduled to ship sometime in the first quarter of 1993.

Unix net helps Fedex say 'no problem'

CONTINUED FROM PAGE 1

nually for the past four years and currently tops 2 million packages per day.

Jones, who took over former CIO Ron Ponder's slot a year ago, said he views the project as a short-term expense with long-term gains. So while costs to implement the project may be high, they are a known quantity, unlike other investments.

For example, Fedex lost "several million dollars" in the early 1980s by getting into fax mail services before the market was ready, according to Otto Grote, an analyst at Derby Securities in New York.

To grow volume in the business it knows best while avoiding additional infrastructure, Fedex is rebuilding an IBM mainframe-based customer service and package-monitoring system to run over networks of mostly Sun SPARCstations being rolled out now. The new configuration is intended to give Fedex views of the business down to the individual customer level. Once those details are evident, the company can schedule vehicles and crews more efficiently, Jones said.

Dennis Jones: *Fedex wants to grow without adding costs*

Systems on tap

Key new systems include the following:

- **Command and Control** is a Unix client/server-based transportation system to monitor — in real time — Fedex's 400 planes and thousands of ground vehicles on delivery routes. The system also tracks weather conditions and Federal Aviation Administration bulletins.

Seventy-five Unix workstations from Sun, HP and National Computer Division are to be installed in the U.S. within 18 months. The boxes will run on an Ethernet wide-area network, which replaces an IBM mainframe-based Systems Network Architecture configuration.

- **Cosmos**, a 10-year-old, mainframe-based package tracking system, is in for a face-lift. In-house-developed graphical user interfaces have, in beta tests, cut user training time in half, from six weeks to three, according to Laurie Tucker, vice president of customer automation systems. Cosmos data, such as barcode scans from Fedex envelopes, will be available to Command and Control users.
- **Powership** is also being overhauled. Unveiled four years ago, the free customer self-maintenance program puts a terminal at customer sites that ship more than six packages daily. The sender fills out air bills electronically and can tap into Cosmos for tracking data. The revamped version will include completely electronic self-invoicing and remittance, Tucker said.

Fedex facts

Four hundred of Fedex's 22,000 customers do their own package tracking and billing estimates electronically via dedicated terminals that Fedex provides free. The setup has cut paperwork 45%, to about one million documents processed per day.

Fedex moves 2 million packages per day.

While package volume has grown in the 20% range annually for the past few years, revenue growth has not been as noteworthy. Sales for 1991 topped $7.6 billion, up about 10% over 1990's $7 billion.

Fedex has run into rough riding against rivals such as United Parcel Service, Inc. and Roadway Express, Grote said, adding that fax technology has also cut into courier business. Fedex "is a fabulous company, but they're getting zapped," he said. "Their technology has been a differentiator, though."

Initial design on Command and Control began 18 months ago. Fedex's 3,000 programmers worked closely with developers from Sun and HP to model business processes using object-oriented tools including C++ from Borland International, Inc.

However, Borland is not one of the dozen partners. Sybase, Inc. and Oracle Corp., among others, have supplied relational database management systems.

"We don't like to strap ourselves to one vendor," Jones explained.

Convenient access

Eventually, each of the company's 40 departments will have access to the same information from a single Unix workstation. The old system was composed of 38 major mainframe applications available through dumb terminals.

Complete rollout of the entire Unix system will take another two years and may be revised. Imaging, for example, may play a larger role. Overseas imaging pilots have "gone well," Tucker said, paving the way for testing to begin here next year.

Although Jones said he has no immediate plans to sell the new system to rivals, going commercial is by no means unthinkable. "If marketable products fall out of this, fine," he said.

Update fraud law, G-man says

By James Daly
CHICAGO

The head of the U.S. Department of Justice's computer crime investigation unit is calling on Congress to add teeth to the Computer Fraud and Abuse Act to fight the growing threat of computer viruses.

"Criminal laws need to reflect technological advances," said Scott Charney, speaking at the Computer Security Institute's annual security conference last week. "Unfortunately, technologies advance faster than the law, and some of the statutes are out of date."

The Computer Fraud and Abuse Act of 1986 made it a violation for anyone to knowingly access, without authorization, a computer that is used substantially for government and/or financial purposes. While still probably the most significant law of its ilk on the books, Charney said it is hardened with loopholes and has simply been outrun by today's electronic bandits.

"Should a disgruntled employee at a hospital be immune from prosecution because he had the 'authority' to access the computer in which he inserted a virus and destroyed thousands of patient records?" Charney asked.

> Charney had harsh words for the Federal Wiretap Statute. He called portions of the law that make it difficult for users to monitor their own systems "the too-stupid-to-be-true" rule. Such prohibitions should be loosened to reflect the swiftness at which computer crime can occur, he added.

Charney said he is helping to draft a legislative proposal that would criminalize the introduction of malicious programming code into computers. The act does not criminalize the increasingly common practice of planting viruses in apparently legitimate programs and then mailing them to companies that insert them into their machines.

"In such cases, the only 'access' to the computer is one that is authorized — that is, an employee accessing their own machine," Charney said.

As such, the statute needs to be amended to criminalize conduct where an individual intentionally dupes an innocent party into inserting malicious code into a machine.

Charney said the better view is to move away from the concept of access and focus on whether the particular use of the computer is authorized.

"It is important that the statute require a suitable intent requirement," Charney said. The prosecution must prove the individual knew his conduct was unauthorized.

Another key component of Charney's get-tough stance on computer crime is a proposed forfeiture provision that would allow the government to confiscate the defendant's computer and other property used in the commission of the offense.

Other lawmen are also grappling with the problem of hitching older laws to new technologies in which information flits unseen across wires, beams of light and radio waves. "A whole lot of jurisdictional law is based on borders, but borders don't matter anymore," said Don Ingraham, who handles high-tech crime investigations at the Alameda County District Attorney's Office in Oakland, Calif. "It's no longer adequate to say, 'Thou shalt not steal.' Now we've got to spell out exactly what constitutes stealing."

SECURITY

Telecommunications fraud, for instance, transcends state lines and federal and state jurisdiction.

Charney said he will pursue other measures as well, including centralizing reporting of computer crime and more international cooperation.

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News Shorts

Dell rides profit rocket

Dell Computer Corp.'s fiscal third-quarter profits more than doubled compared with the same period last year, topping $28.6 million compared with $13 million a year ago. The Austin, Texas-based PC maker credited rich service offerings for spurring sales in a highly competitive market. Also, sales of 486-based systems surged to make up 70% of total revenue, up from 19% in the same quarter a year ago. Total sales reached $570 million from $229.3 million last year.

IBM to license BIOS to Phoenix

IBM said it would license its basic I/O system (BIOS) for AT-bus and Micro Channel Architecture computers to Phoenix Technologies Ltd. in Norwood, Mass. An IBM spokesman called the move a sign of how aggressive the company will be as an OEM of technologies it develops. Phoenix said it will reduce to four months the time it takes to get a new IBM system, video, keyboard and Small Computer Systems Interface BIOS technology to manufacturers that are starting with current IBM technology. The vendors said they would work together on future BIOS versions to develop broader and faster acceptance of technology advances.

Rival database API gains support

To gain momentum against Microsoft Corp.'s Open Database Connectivity (ODBC) standard, Borland international, Inc. proposed its Integrated Database Application Programming Interface (IDAPI) standard at last week's Comdex/Fall '92 show, joined by IDAPI partners IBM, Novell, Inc. and WordPerfect Corp. Other firms announcing IDAPI support at Comdex included Computer Associates International, Inc., Oracle Corp., Gupta Corp., Micro Decisionware, Inc., Cognos, Inc., Microrim, Inc. and XDB Systems, Inc. Some vendors, including Oracle and Gupta, said they would support both ODBC and IDAPI.

Map software aided Clinton campaign

Basking in the glow of Gov. Bill Clinton's presidential election victory, Strategic Mapping, Inc. in Santa Clara, Calif., last week pointed out that the Clinton campaign used the firm's desktop mapping software for high-level strategic planning. The color-coded Atlas Pro maps — with overlays of political data — were used to chart trends, recruit volunteers, decide where to send the candidates and determine the number of television ads to buy in specific markets, recalled Janet Handal, a technology strategist at Clinton headquarters.

Chip maker's problems deepen

Citing intense price competition and weaker-than-expected sales, Chips and Technologies, Inc. said it has laid off 20% of its work force, cutting ranks to between 340 and 350 employees. The company also plans to restructure operations to focus on two revenue-generating product lines: graphic controllers and PC/Chip, a processor for handheld computers.

SHORT TAKES **Apple Computer, Inc.** named human-focused design expert Donald Norman as an Apple Fellow. He will advise product developers on how to make offerings "even simpler and easier to use."... **National Semiconductor Corp.** demonstrated live videoconferencing to Ethernet-equipped desktops at Comdex/Fall '92 last week. The firm predicted the technology will be used in affordable, real-time desktop video applications in "a few years."... Walnut Creek, Calif.-based **PeopleSoft, Inc.** completed an initial public offering last week of 3 million shares at $17 each.... **Motorola, Inc.** introduced software last week that will let Apple PowerBook users receive wireless electronic mail through its Embare wireless E-mail service in 200 cities nationwide.

Cray, IBM add support to multiprocessing push

By Ellis Booker
MINNEAPOLIS

Cray Research, Inc., the world's largest supercomputer vendor, jumped on the massively parallel processing (MPP) bandwagon last week when it announced at Supercomputing '92 that its first MPP product, code-named T3D, will ship in 1993.

The supercomputer giant was joined by IBM, which announced December delivery of the IBM Shared Memory System Power/4, an MPP system that integrates four RISC System/6000s.

For the sophisticated end users of supercomputer technology, however, the proof of MPP will be in the pudding. "We'd like a parallel processing system to do what it's advertised to do," said a Texas petroleum company official at the show, alluding to more cost-effective processing. "We've scaled back the number of processors we ordered," said the official, who asked not to be identified.

Taken together, the IBM and Cray announcements mean "the big guys are in this game," said George E. Lindamood, vice president and director of high-performance computing at Gartner Group, Inc. in Stamford. Core MPP players, among them NCube Corp. in Foster City, Calif., and MasPar Computer Corp. in Sunnyvale, Calif., had better find a niche or strong distribution channel, he added.

Donald M. Young, a senior vice president at Lehman Brothers in New York, said he thinks MPP technology has a better chance than vector supercomputers of making it out of what some have called the research/scientific "ghetto" and into mass commercial settings.

Target applications include decision support and what has come to be known as "data mining," which uses the raw horsepower of an MPP system to look at huge, unstructured data sets as part of market research — for example, looking at the where and when of every bottle of shampoo sold by a particular retailer during a two-week period.

"But the key is going to be applications," Young added, echoing the belief of many MPP proponents.

How will these users build MPP applications? Toward that end, several attendees at Supercomputing '92 said they were encouraged by the nearly codified High Performance Fortran (HPF) standard. Derived from Fortran 90, HPF will be portable among different MPP systems. "My sense is [HPF] compilers will appear early next year, meaning [independent software vendors] will start writing code, which means applications will show up at the end of '93 or early '94," Lindamood said.

Cray's announcement, which had been expected, underscored the widely held belief among observers of high-performance computing that MPP is the next step in supercomputing. This is because the architecture has better price/performance characteristics, and many believe only MPP systems will be able to reach the level of 1 trillion floating-point operations per second (FLOPS) and attack such phenomenally complex "grand challenge" tasks as atmospheric modeling.

Traditional supercomputers — using a technique pioneered by Eagan, Minn.-based Cray — are vector processors, which line up calculations in a row (a vector) that is then calculated sequentially. By contrast, MPP systems use a higher number of less powerful processors, which work on the calculations simultaneously, or "in parallel."

At the heart of Cray's MPP will be tens, hundreds or thousands of Digital Equipment Corp. 64-bit, 150 MFLOPS Alpha microprocessors. Cray said its first configuration will have 1,024 processors and will be scalable to 300 peak GFLOPS in a 2,048-processor version. Cray said it expects to achieve peak TFLOPS performance on the system by mid-decade.

But Cray by no means rejected its current vector-based solutions last week. Citing what they called the "deficiencies" of current MPP products, Cray officials said they envisioned the T3D not as a stand-alone product but as a tightly coupled part of its current Y-MP supercomputer line, which uses a parallel-vector-scalar architecture.

IBM executives, meanwhile, said the Shared Memory System Power/4 may eventually have 64 reduced instruction set computing processors in it.

In September, IBM showed a four-processor configuration running Oracle Corp.'s Oracle 7, which contains extensions to support parallel databases and parallel queries. The Power/4, which IBM plans to soon evaluate at customer sites, sits between two other high-performance computing approaches IBM is exploring.

At the high end are massively parallel systems such as those in development at IBM's Highly Parallel Supercomputing Systems Laboratory in Kingston, N.Y. Those systems will have eight to 64 RS/6000 processors. Another approach features a supercomputer soon expected from affiliate Supercomputer Systems, Inc. (see story above).

At the low end, IBM is forging ahead on cluster computing technology, which distributes computational tasks to workstations over gigabit-speed networks. IBM installed this kind of network, composed of 33 RS/6000s, at the NASA Lewis Research Center this month.

Super anticipation

A standing-room-only crowd attended an 8:30 a.m. presentation at last week's Supercomputer '92 conference to hear renowned supercomputer designer Steve Chen talk about the future of parallel processing technology.

Many in the audience also wanted to hear Chen, president and chief executive officer of Supercomputer Systems, tell when his long-awaited, next-generation supercomputer would arrive.

"Soon, very soon," Chen said in response to the first audience question following his talk.

But knowledgeable sources said the system may come even sooner. At least one source suggested that Chen's reluctance to speak last week had more to do with an imminent initial public offering with the Securities and Exchange Commission.

In his talk, Chen strongly endorsed the concept of parallelism, advocating this design not only for hardware components such as processors, memory and I/O but also for compiler, system and application software.

Such "parallel by design" systems will be better able to respond to grand scientific challenges and the tasks of interest to business, said Chen, the architect of the first parallel supercomputer, the Cray X-MP.

—Ellis Booker

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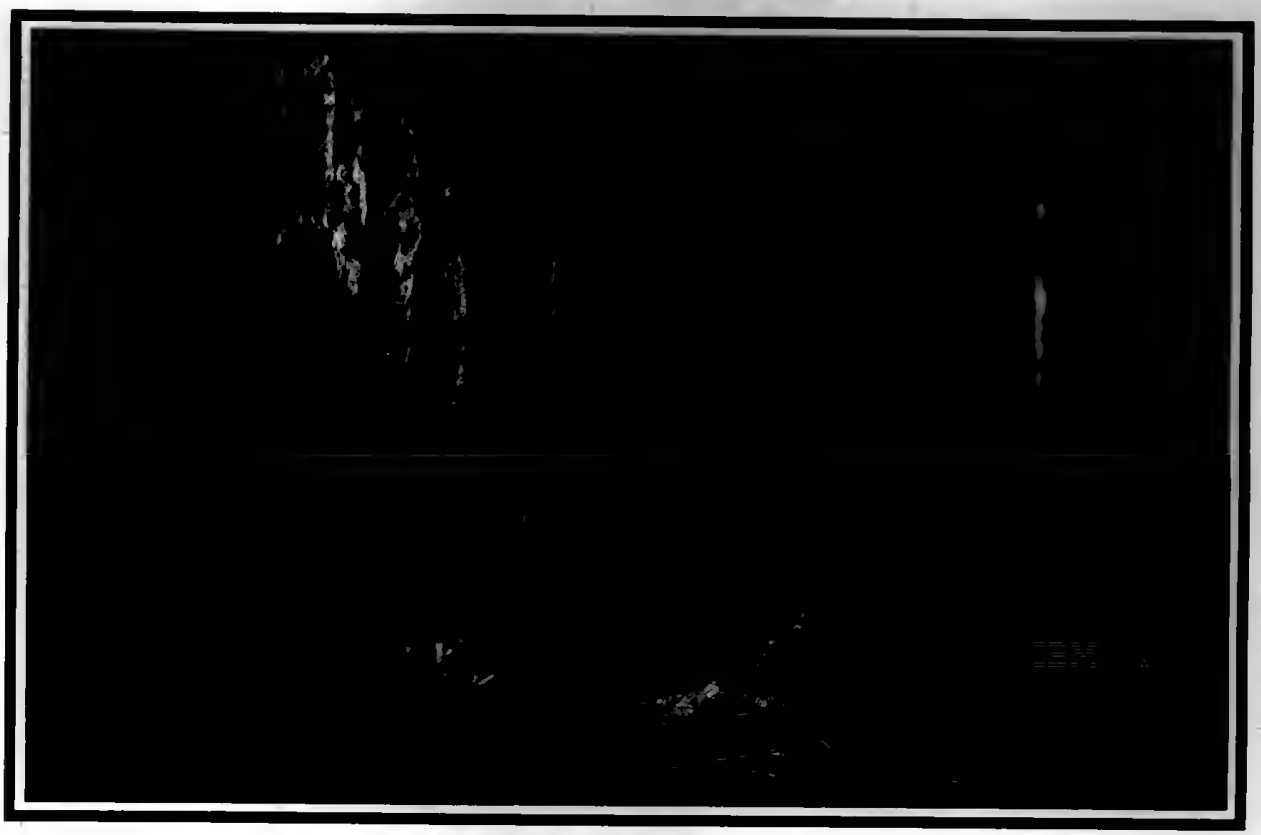

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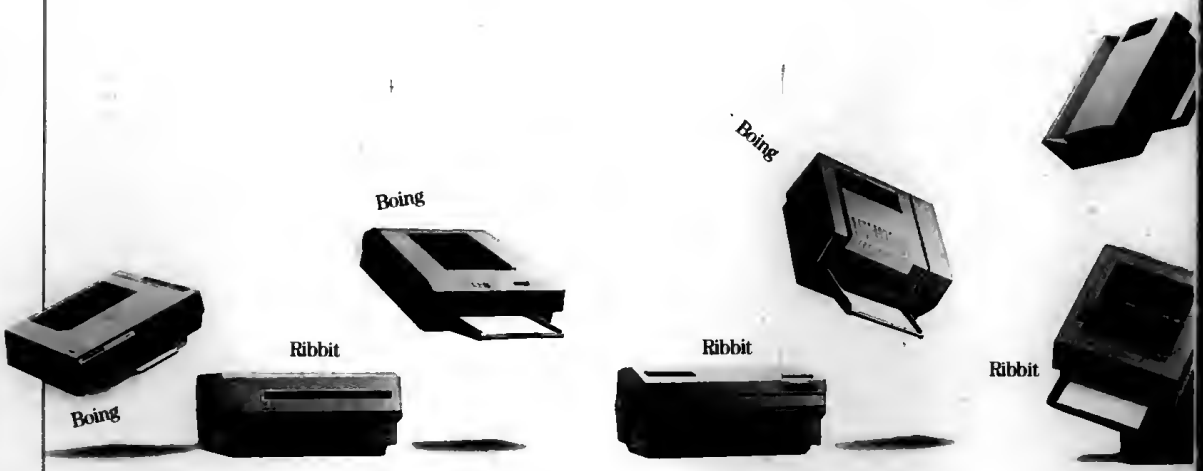
Other laser printers play leapfrog trying to catch up with the HP LaserJet.



The new HP LaserJet 4 printer isn't a hopped-up version of the past generation. Its new, advanced design sets much higher standards for print quality, speed, built-in features and value than ever before.

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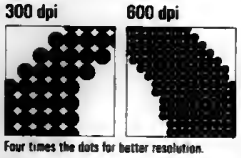

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Thanks to a new RISC processor, tuned vector graphics and faster I/Os, the HP LaserJet 4 also sets new standards for speed. It even prints many 600 dpi graphics at a true 8 pages per minute. It's faster on networks, too.

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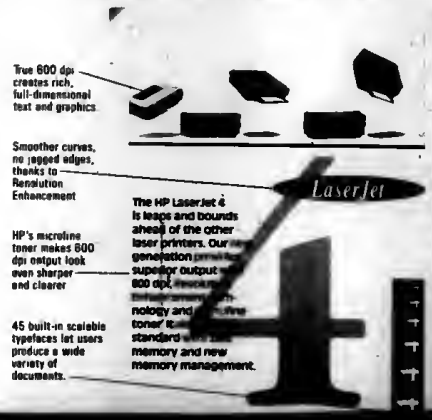

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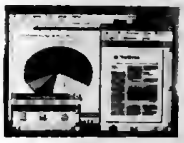

Several popular software drivers are included: Windows, WordPerfect and Lotus. As well as the new HP Explorer PC utility software, which provides a printing tutorial to guide your users through set-up and operation of the printer's new features.

All this makes the HP LaserJet 4 printer supremely simple to plug-and-play. As you'd expect, it also offers complete document and software compatibility with the HP LaserJet III printer.

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Grid, AT&T jolt pen market

By Michael Fitzgerald
LAS VEGAS

The shaky pen market got what looks to be a solid shot in the arm last week from several major announcements and some real live customers.

Grid Systems Corp. unveiled the Grid Convertible, a combination pen and keyboard notebook featuring Intel Corp.'s 25-MHz 80386SL. Priced at $3,495, it runs Microsoft Corp.'s Windows for Pen Computing and is bundled with Penware, Inc.'s PenCell spreadsheet.

D. Bruce Walter, Grid's president, said he is looking forward to healthy Convertible sales, in part because of input from beta-test users such as Brent Rogers, manager of information systems at Columbia, S.C.-based Colonial Life & Accident Insurance Co. Rogers has five units right now, with 45 more on order. He said if the product works out, Colonial will outfit all 1,500 of its agents with a Convertible.

"Most of our agents are computer illiterate to the point where it takes them a lot of time to even use the mouse. They're more comfortable with a pen," Rogers said. "But the big value to us is the ability to do electronic signature capture — this means we have the ability to sign deals when we make the initial call."

Analysts said they liked the product and noted that Grid's pricing and design would help it avoid the sales woes that sank Momenta International, Inc. Some said they expect the unit will sell for less than $3,000 on the street.

"If I had to choose a notebook, it'd be this one," said Andrew M. Seybold, editor in chief of the "Outlook on Professional Computing" in Brookdale, Calif. "It's a good notebook, plus it has the Pen for Windows software, so it gives you capabilities beyond the mouse."

Grid's system also "throws down a gauntlet to traditional notebook vendors because it makes the pen important enough to pay attention to," said Tim Bajarin, president of Creative Strategies Research International, Inc. in Santa Clara, Calif. Bajarin predicted that more products like the Convertible will debut.

Corporate support

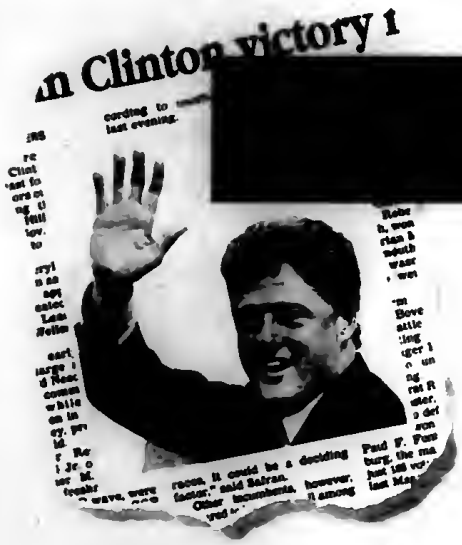
Pen-only computers are by no means dead and received a strong vote of confidence from AT&T, NEC Corp., Matsushita Electric Industrial Co. and Toshiba Corp. These companies all announced last week that they would build products around AT&T's Hobbit microprocessor and Go Corp.'s PenPoint operating environment. Previously, only AT&T's Microelectronics division supported Hobbit.

AT&T also said it will resell the EO, Inc. Personal Communicators — which are Hobbit- and PenPoint-based — through its Phone Center stores.

"The pen-based market has bifurcated into a notebook and pen business and a personal communicator business, and we think the EO machine is the most exciting thing in the pen market," noted Go Chairman S. Jerrold Kaplan.

Go announced PenPoint Version 2.0, an international version that runs in different languages. It was built using Universal Code, which is a 16-bit code, rather than the 8-bit (or 1-byte) model used in the U.S. This could make it easy for U.S. and Japanese software vendors to convert their programs to each other's markets. Go is now developing PenPoint Version 3.0, with much-enhanced communications abilities, for release next year.

Several companies said they were seriously investigating the Go environment for their businesses. "We think it could let us do things we can't do today," said Richard A. Groff, business area consultant at Central and South West Services, Inc. in Dallas. Groff said his company was in a proof-of-concept stage right now, testing the various hardware devices on the market on the way to a June 1993 pilot.



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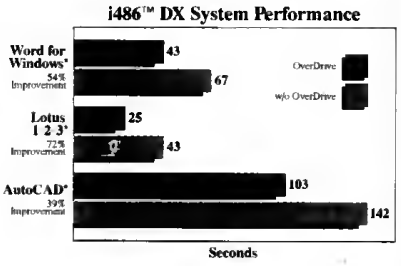

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Object technologists will link existing apps to Pink operating system

By Christopher Lindquist
LAS VEGAS

Where is OS/2 headed? That was the question answered partially by Lee Reiswig, who heads IBM's Personal Software Products group, as the group made its public debut at Comdex last week. The road is still a bit unclear, but at least there is a road.

The company's current operating system lineup includes OS/2, DOS, AIX and the future fruits of Taligent, a joint venture with Apple Computer, Inc. that is developing an object-oriented operating system.

Additionally, Taligent's foundation, the Mach kernel, offers portability across platforms for OS/2 and AIX.

To which should users or independent software vendors turn? They can look for guidance from a rough road map sketched out by IBM officials last week.

•Starting next year, OS/2 will offer object technologies that will allow developers to write applications that will later be able to run on Taligent's Pink operating system.

Is interest in OS/2 rising? According to a Forrester Research survey of 100 Fortune 1,000 sites, the answer is yes. OS/2's networking features, multitasking capabilities, DOS and Windows integration and the ability to downsize key business applications were the reasons cited for using the operating system.

•In addition, these OS/2 developers will be able to run their applications on a micro kernel-based version of OS/2.

•Meanwhile, Unix developers can stay on Unix and write applications to a version of AIX also based on the micro kernel.

The micro kernel is intended to enable portability and multiprocessor support for OS/2 and AIX. Reiswig acknowledged that IBM has just begun to speak to users and developers individually on the latest operating system strategy but said there will be a concerted effort to get the information out.

IBM will not only be giving information but will request it. "It's not what we've done in the past," Reiswig said. "Blast the things out and hope everyone likes it."

Analysts said the strategy will work but added that it is neither a great solution nor one that is very well spelled out.

"It's the 'Anything but NT' strategy," said John McCarthy, director of computing strategy research at Forrester Research, Inc. in Cambridge, Mass. "They're scrambling."

Where they are scrambling to, of course, is Taligent. Exactly how they are going to get there and how long that will take are the key questions, which no one at IBM or Taligent seems ready to answer.

> Exactly how they are going to get to Taligent is a key question.

"I don't know how they're going to do it, and they're not telling anyone how to do it," said Andy Mahon, director of advanced software development at New Science Associates, Inc. in Boston. Developers "have to take it on faith."

This raises yet another question: After years of hanging tough with IBM on the many reincarnations and repositionings of OS/2, will developers stay the course or transfer all allegiance to competing systems such as NT? It is too early to know for sure.

IBM mulls groupware alternatives

CONTINUED FROM PAGE 1

serve as the entry-level workgroup product. An alpha version of this software was demonstrated at Comdex/Fall '92 and included capabilities to remotely share the OS/2 Clipboard as well as a feature called OS/2 Chat that would allow a real-time, two-way conversation.

•A second level would be another OS/2 with built-in integrated workgroup applications, such as electronic mail. Also targeted at small groups, it would be designed for users who do not need a full-blown workgroup platform but want some workgroup functions. It would likely be the most direct Microsoft Windows for Workgroups competitor. Art Olbert, IBM Personal Systems director of LAN systems, would not say which applications would be bundled in it but said, "It isn't going to be all IBM stuff."

> "Windows for Workgroups is receiving a questionable response."
> —*Art Olbert, IBM*

•A third level would be OS/2 and LAN Server, to which separate components could be added, such as CC:Mail. This would be aimed at users who need higher level networking functions and who may wish to add workgroup elements on a component basis.

•A fourth level would be Notes, which IBM currently resells and considers its premier workgroup offering for local-area networks. It is offered to users requiring a more sophisticated workgroup platform.

•An optional fifth level would be Notes technology bundled into the OS/2 operating system. Work has been under way on this project since last year. "We are still working on this," Olbert said. "We are working to make it so their security, directories and log-ons can be replaced by what you get with the OS/2 system. But you would still get the Notes function."

Information systems managers said this strategy appeared to be a cover-all-the-bases approach, which could appeal to a variety of users. But one executive said it still would not change his mind on OS/2's role.

"I'm not sure it would make a fundamental difference," said Ronan McGrath, vice president of IS and accounting at Canadian National Railways in Montreal. "There is nothing out there that would change our view of OS/2 as a server operating system only."

While IBM evaluates workgroup plans, Microsoft is planning to ship at least 1 million copies of Windows for Workgroups within 12 months.

Paul Zagaeski, a senior analyst at The Yankee Group in Boston, said the plan suggests IBM is rethinking the way it traditionally approaches a new market.

"In the past, IBM's preferred customer profile would have excluded the kind of customer that would want this really low-end function," Zagaeski said.

While Olbert would not say if or when any of these efforts would become real products, he nonetheless asserted that IBM's plan will one-up Microsoft because it fills in gaps left by Windows for Workgroups.

"Windows for Workgroups is receiving a questionable response because people are saying, 'I'm not sure how to use this,'" Olbert said.

Not surprisingly, Microsoft challenged IBM's claim and said the Windows for Workgroups offering can be tailored to fit different user requirements.

Rogers Weed, a Windows for Workgroups product manager, said that users can choose to install any or none of the workgroup applications bundled with the operating system.

Reporter's Notebook

The folks who put on Comdex/Fall '92, the Interface Group, were kind enough to supply a show guide on floppy disk for people who didn't want to cart around the fat 723-page book. Unfortunately for the thousands of laptop users who attended, however, it was only on 5¼-inch disks.

One of the hottest — or at least most noticeable — freebie pins at the show came from Stargate Technologies, a networking hardware manufacturer. It wasn't just the look of the battery-operated, flashing accessory that got people to wear them, though: Stargate spotters handed out cash to people seen wearing the pins on the show floor or at local casinos. Rumor had it the Mirage and Caesar's offered the best odds for pin wearers.

While Microsoft's Foxpro 2.5 database performed flawlessly in demos, sister product Access wasn't so lucky. Access twice failed to import a graph properly. To top things off, when the room went dark for the final video, nothing happened for an embarrassingly long moment. "Maybe someone tripped over the power cord," one attendee was overheard saying.

The annual sexist booth award goes again to Computer Associates, which got some bad press at the spring Comdex event for featuring a fashion show with scantily clad women at its booth. At Comdex/Fall, the company stuck with the fashion show theme but this time trotted out beefcake along with the cheesecake.

IBM showed its micro kernel technology in action at its software booth, demonstrating the Carnegie Mellon Mach 3.0 kernel running a few AIX "personalities" along with a DOS personality. The one missing? OS/2 2.0, which was not quite ready to demo in public.

T. S. Microtech pressed people's hot buttons with a $40 prize for attendees who could stand the transistors' heat and hold a finger on the company's 486-based microprocessor for 40 seconds.

Rumors around the show floor held that Apple is talking to IBM about developing a Newton operating system that runs on Intel processors — another step in Apple's transmogrification to a software vendor.

IBM's OEM booth had OS/2-ready versions of PCs from Compaq, AST, Zenith Data and Gateway 2000. An IBM marketing rep said negotiations for these vendors to bundle OS/2 were under way. Don't hold your breath, though. A well-placed Dell source said that after Dell's Glenn Henry and IBM's Lee Reiswig shook hands on a deal for Dell to bundle OS/2, six months passed before IBM's lawyers signed off on the deal.

—Compiled by CW staff members

In the beginning, only hackers cared about UNIX.
Now it's ironic to see gaggles of suits
trekking down to IS asking the gurus about UNIX.
"Will it save our company?" they plead.
And hackers (we mean IS professionals),
weary of flaming the clueless *weeblefesters*,
shouldn't be faulted for wondering what took so long.
(All at once now: "What took management so long to *get* UNIX?")
Anyone with an IQ above room temperature knows that the hostile
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Introducing

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screaming 486 SLC™ 25 MHz upgradable processor. But it's built for comfort too. There's a surprisingly roomy interior, with a full-size, ergonomically designed keyboard. And a screen that literally bends over backwards (180 degrees, to be precise).

Strategically placed on the keyboard is a little red spot called the TrackPoint II.™ It does what a mouse would do with a few million more years of evolution. Nothing dangles; it's part of the soul of the machine. You can operate it with one fingertip. And it allows you to think on any terrain, even one without any flat surfaces.

The ThinkPad's screen is a thing of almost aching beauty. Its 640 × 480 VGA resolution is sharper than that of many desktop computers. It displays 256 colors. And it's the biggest screen on any notebook. All of which makes ThinkPad very easy on the eyes.

The ThinkPad comes standard with things some other notebooks don't even offer as options. Like 4MB of memory you can upgrade to 16MB. 120MB of hard disk space. Pre-installed DOS 5.0 and

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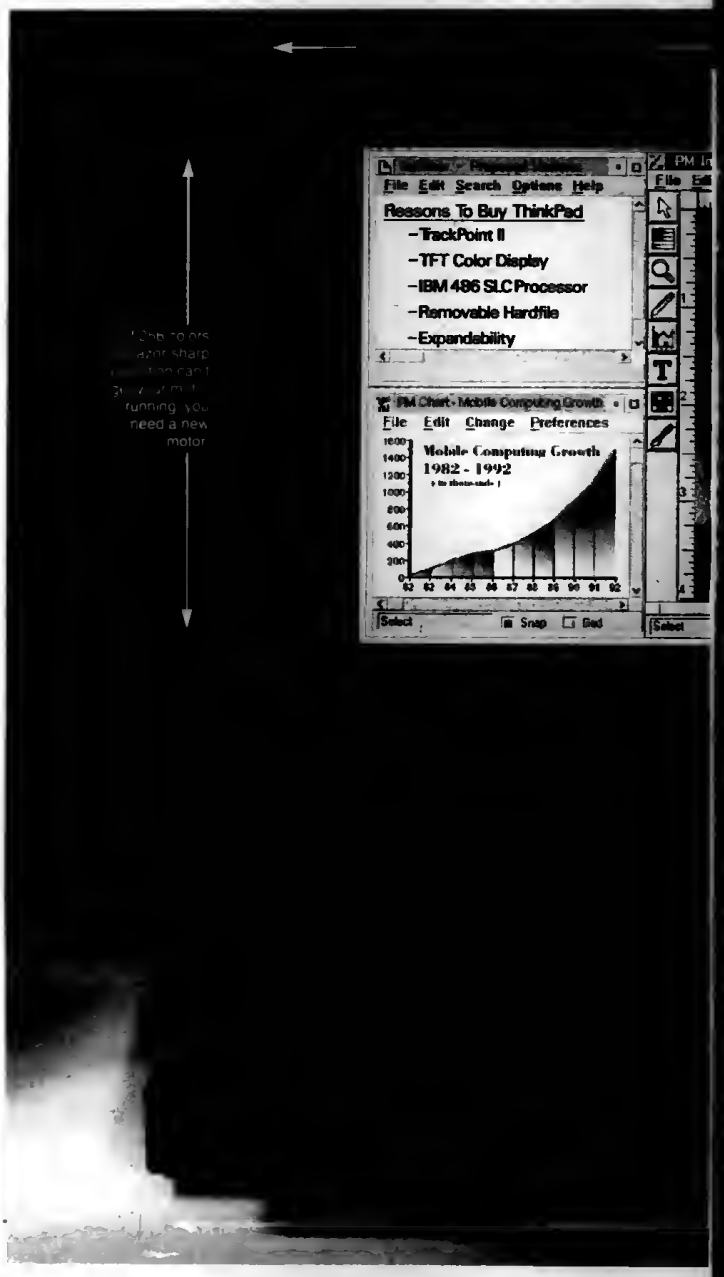

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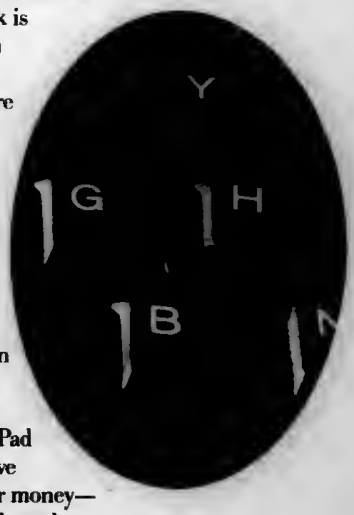

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Weight	7.6 Lbs. with Battery	6.5 Lbs. with Battery
Warranty	3 Years (International)	3 Years (International)
Price**	$4,350	$2,750

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UN Conventional View

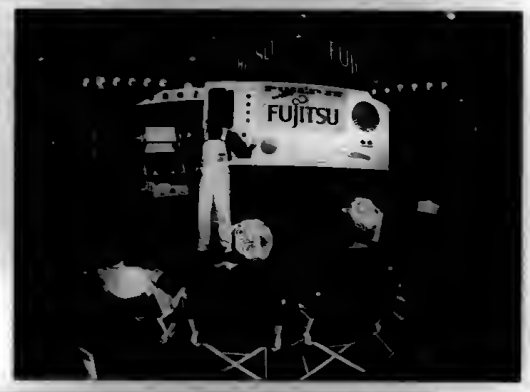
Photographer Chip Simons took an unorthodox view of the Comdex show. After five days of cruising the six convention sites, show goers may well identify with these surrealistic images.

Comdex visitors flock to the Las Vegas convention center, one of six show sites.

A visitor to Microsoft's Windows display is apparently overcome by the sheer volume of applications on display.

Virtual reality? No, a multimedia display for a vendor of local-bus equipment.

Off the show floor, a mobile computing showcase highlights how small computers have become.



Everyone's got a gimmick. For Fujitsu, it's construction garb.

A couple of employees on booth duty ham it up with Lotus-colored glasses.

Toshiba relies on a giant message to draw attention to its tiny computers.

IBM PCs to take 'Green' slant

Environmentally sound, or "green," PCs are being driven by emerging European standards. A European Community directive, scheduled to take effect next month, states that radiation from PCs should be reduced to negligible levels. Commodore's German unit has gone one step further: It will recycle any old PC.

By Michael Fitzgerald
LAS VEGAS

The IBM PC Co. unveiled a next-generation PC last week that weighs 4.4 pounds, measures 12 by 12 in., uses neither the AT nor the Micro Channel Architecture bus and has a flat-panel monitor in place of a CRT.

Compliant with Environmental Protection Agency regulations that go into effect in 1993, a family of products similar to the IBM Energy Prototype PCs will appear before the middle of next year, according to James G. Turner, director of premium systems at IBM.

"I guess you could call it the PS/3, though I don't know that that's what we'll call it," Turner said. One source said the new machine may be called the Personal System/2 Executive model.

IBM's prototype, which Turner said is very close to what IBM intends to introduce next year, has several other unusual features, including the following:

- The bus interface has four Personal Computer Memory Card International Association (PCMCIA) Type 2 slots, two on the front and two on the back.
- The casing has room for a 3½-in. disk and a 2½-in. hard drive.
- Advanced power savings are built-in. With the flat-panel display, the system will draw 51W of electricity, compared with the 250W today's PCs use.

IBM estimated a PS/3 will cost $15 a year in power, as opposed to $150 to $200 a year today. Turner said he did not expect the new PCs to cost customers a premium.

The display machine used IBM's clock-doubling 25/50-MHz, 3.3V 486SLC2. Intel Corp., Cyrix Corp. and Advanced Micro Devices, Inc. also make 3.3V processors, which they plan to include in their product lines.

Turner said IBM was moving its product line in an energy-conserving direction because of the high cost of energy here and in Europe and the small footprint needed for the rapidly growing Japanese market.

"You could put this inside your desk drawer," he said, because the PS/3 uses so little power it does not need a fan.

Customers will also be able to purchase a new keyboard — with the numeric keypad split off from it — and the TrackPoint pointing device recently introduced in the ThinkPad notebook line.

While the PS/3 was shown with an active-matrix, thin-film transistor, flat-screen color display, which is pricier than a monitor, Turner said IBM will also offer a regular CRT with built-in power management.

The new machine was also designed with snap-in components to make it easy to upgrade — and recycle when it is no longer useful.

Turner said the systems will use MWave, a multimedia chip developed by IBM and Texas Instruments, Inc., on the planar board and may use a new version of Extended Graphics Array to greatly enhance multimedia graphics. For security, Turner said, IBM will build a utility into the system software that will force users to type in a password to swap PCMCIA cards.

Wireless not ready to take off

Security, connectivity, standards issues still need to be addressed

By Michael Fitzgerald
LAS VEGAS

Wireless communications was on parade at Comdex/Fall '92, but the industry agrees it will be a while before the sweet music of easy connectivity and reduced costs becomes generally available.

"Wireless is in that magic egg-hatching period right now, and this was its coming-out party, but there are a lot of issues to be resolved around the cost and the networking infrastructure," said Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass.

"With the cellular and packet networks, you have 90% population coverage and only 30% geographic coverage, and you have issues with power consumption, cost, security and transaction efficiency," said Vern Raburn, chairman of Slate Corp.

The search for standards will not stop early implementors from making effective use of wireless technology, analysts said.

"For transaction-oriented environments like banking or sales, where real-time data exchange is valuable, or for fast-moving industries like trucking companies, this technology represents an immediate gain that will make it attractive," Stephen said.

Analysts and vendors said several issues remain to be resolved before wireless communications takes off:

- **Security** — Right now, people can tap into cellular lines and read files as they are transferred. Encryption software and hardware are being developed but are not ready to ship yet.
- **Connectivity** — Cellular networks suffer from staying connected and interference. While Microcom Networking Protocol-10 (MNP-10) helps, it only works if it is installed in both the sending and receiving ends or is built into the cellular network.
- **Standards** — Nothing is standard, and no one knows for sure whether cellular will win in the market, or if packet-switching approaches such as Ardis will win. Infrared communications and radio frequency efforts will also compete for attention during the next year.
- **Better compression algorithms** — These are needed to compress data for faster transmission, an important cost-cutter.

Cutting cables

The present wireless market primarily consists of LAN and PBX technology, but wireless integrated systems will be the market's real push in the future

Total U.S. wireless office market
(Rounded figures)

	Unit shipments (thousands)	Revenue (millions)
1989	0.8	$1.2
1990	4.2	$3.6
1991	28.4	$24.8
1992	113.8	$96.6
1993	520.8	$456.9
1994	1,127.0	$951.8
1995	1,958.5	$1,556.9

Source: Market Intelligence Research Corp.

"We're talking in RAM Mobile, but their packet-switching price is on the high side. But we have a mobile sales force, and this would fit into what we're doing," said James Wallace, information services manager at TruTest Manufacturing Co. in Cary, Ill.

Next year there will be a frenzy of standards efforts spearheaded by groups such as the Portable Computer Communications Association. For instance, IBM's Robert L. Carberry, assistant general manager of the Entry Systems Division, said IBM and a number of the regional Bell operating companies are pushing Cellular Pocket Data Protocol, a standard that will allow digital packet-switching over standard analog cellular lines.

Reporter's Notebook

Lexicus, a Palo Alto, Calif.-based start-up, introduced what it called the first pen computing software to recognize cursive handwriting. However, Lexicus met its match with our reporter, whose careful rendition of "The quick brown fox jumped over the lazy dog" was interpreted as "The quick boon fox lunped ourr the lcgy dog."

While **Motorola** touted its 68000 and 88000 series chips on the show floor, other industry figures pegged the processors for ultimate demise. Chip survivors of the '90s, according to John Gage, director of the science office at **Sun Microsystems**, will be the following: **Intel** because it is so well-entrenched; **Sun's** 64-bit SPARC, again because of proliferation; and the **IBM/Apple** PowerPC, simply because of the big bucks behind it.

Proving that there is life beyond computers, **Microsoft** scion Bill Gates fielded questions on the human genome project, the declining quality of American education and bringing art to the masses — all during a PC user group reception.

IBM had the right idea for attracting foot-weary attendees to its OS/2 independent software vendor display. Demo machines were set up on ergonomic desks from Bruneau, Quebec-based **Furniture**. Not only did the desk have very comfortable chairs, but the footrests also included massagers.

In the hype, kitsch and sound bite category, Bob Corrigan, chief of IBM PC Co., likened the independent unit's new-found financial and decision-making freedom to "rediscovering our inner child" during a well-attended speech. He also said, "This is not your father's IBM" and donned Mickey Mouse ears after talking about a giant PC deal with Disneyworld France.

If Windows for Workgroups "is a virus, we're the antivirus," quipped IBM's Bob Carberry after consultant Roger McNamee predicted that Microsoft's new workgroup application will be wildly popular — "spreading like a virus." Carberry alluded to IBM's own basic workgroup features reportedly in the cards for OS/2 (see story page 1).

Kaleida, Apple's multimedia venture with IBM, has a new kind of CD in "early alpha testing" with selected developers, according to Nat Goldhaber, president and chief executive officer of Kaleida. The goal is to build a disk that can be played on any multimedia machine adhering to Apple's Script/X standard.

Some Comdex attendees — after being turned away from hotels where they had prepaid reservations, waiting two hours in taxi lines and traipsing miles between Vegas hotels and the convention center — were heard muttering, "Never again. They don't pay me enough for this kind of abuse."

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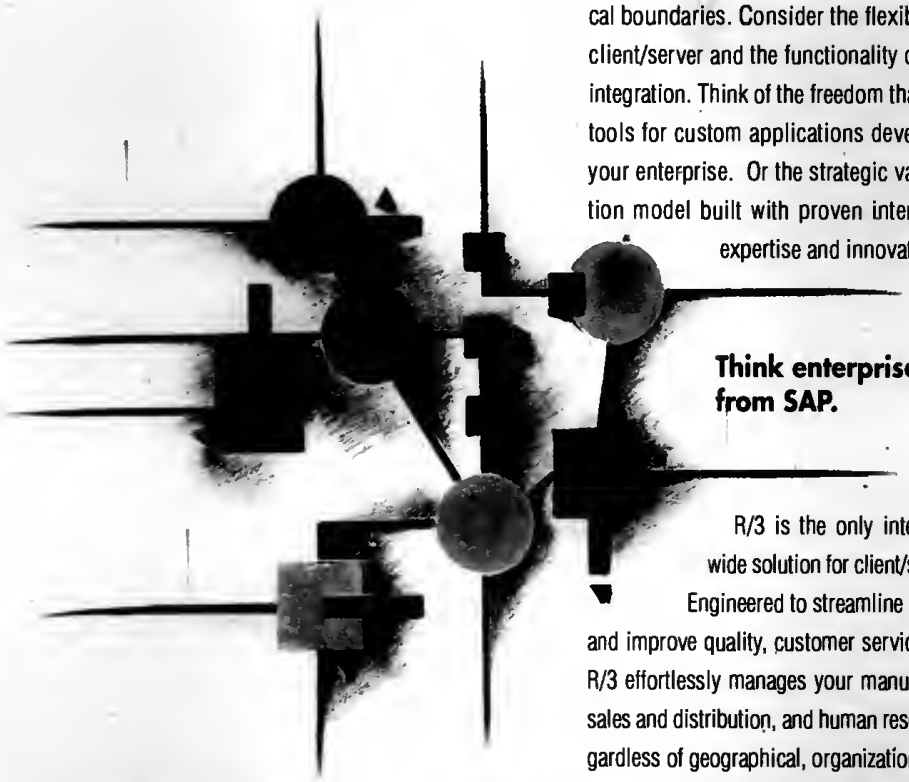

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95. Other Titled Personnel

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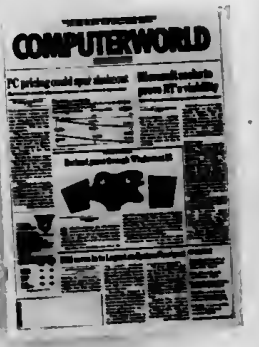

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70. Mining/Construction/Petroleum/Refining/Agric.
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. System Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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Advanced Technology

More than a matter of money

U.S. companies must work on their methods if their R&D is to be effective

By Gary H. Anthes

NO ONE NEEDS TO TELL APPLE Computer, Inc. about the importance of research and development: Last year, Apple derived an astonishing 85% of its revenue from products introduced during the year.

The company spends nearly $2 million a day on R&D, about average for a computer company with $7 billion in annual sales. Computer hardware, software, services and semiconductor companies last year invested $18.6 billion in R&D, more than any other industrial sector.

Computer companies are spending more on R&D as technology change accelerates. They are also seeking R&D partners, a practice that leverages R&D budgets, provides access to scarce skills and brings users new products faster.

On average, computer and semiconductor firms invested 8.7% of their sales in R&D, more than double the average for all U.S. industry, according to *Business Week*. A few companies went much higher; Intel Corp. spent 17% of its $4.8 billion in sales on R&D, and SAS Institute, Inc. in Cary, N.C., plowed a whopping 35% of its $295 million in revenue back into its software products.

But despite these huge sums — and despite the obvious success of companies such as Apple, Intel and SAS — critics say U.S. R&D funds could be better spent. "We are underinvesting in long-term research," said Erich Bloch, distinguished fellow at the private Council on Competitiveness in Washington, D.C., and former director of the National Science Foundation (NSF). "You look at IBM or GE or RCA or Bell Labs; they have large labs that did a lot of basic research, and they have cut it back."

Continual improvements

At the same time, Bloch said, U.S. firms do not make enough small, incremental improvements to existing products. "IBM's problem with the PC was that they sat on it too long instead of constantly improving it." Others say too much federally funded university research remains locked in the ivory tower, with little trickling down to the products taxpayers buy.

"There is some validity to the view that we have become detached from the application of technology," said William Wulf, AT&T professor of engineering and applied science at the University of Virginia.

Wulf is a founder of software vendor Tartan Laboratories, Inc. and former head of computer science programs at the NSF, which Congress is now pressing to focus more on applied research. Wulf said the NSF should devote more attention to technology transfer as long as that does not jeopardize long-term basic research.

Some observers fault industry for not more effectively tapping into the technology available through government programs and industry partnerships, but a trend to do just that is emerging.

"Company after company — AT&T, IBM, Motorola — is reaching out to other companies [for] research work," said J. Richard Iverson, president of the American Electronics Association (AEA).

Iverson said an AEA member, which he would not name, may be on a course that heralds a new paradigm for obtaining technology. The company has sought funding from the Defense Advanced Research Projects Agency for one phase of R&D, from the U.S. Department of Commerce for another phase, from a joint venture with a large company for another and has entered into technology-sharing agreements with two federal laboratories.

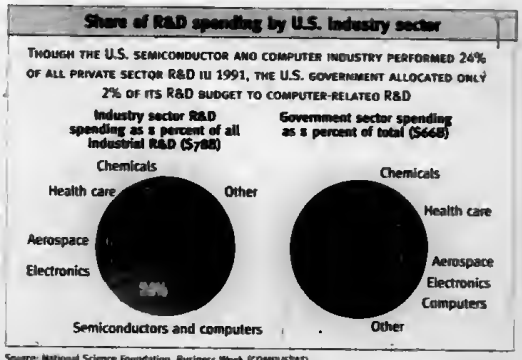
"It's pretty exciting, a very bold venture," Iverson said. "They have taken a look at how they can move their business forward, and it takes all these elements to do it. It's a fairly small company and they'd never have enough money or expertise to do it themselves."

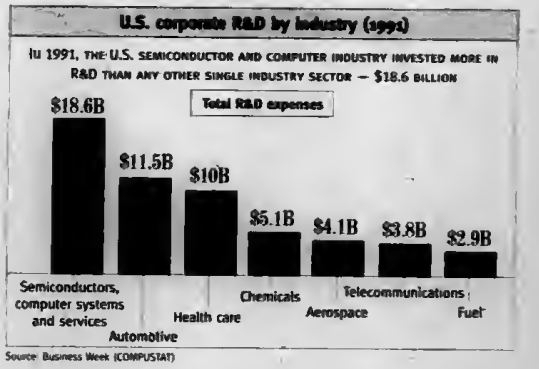
R&D partners

He said another company, a large one, has gone the same route but has taken it even further by including customers in the research alliance, not as so-called "beta" testers of new products but as R&D partners. That ensures users will get what they need, and it gives key customers the advantage of having new technology before their competitors, he said.

Iverson said it is too soon to say whether these omnibus partnerships will become common, but he called the idea "a good model."

The government now spends some $70 billion on R&D, about 60% of it for defense, a percentage President-elect Bill Clinton has said is too high. He said he would shift $7 billion over three years from defense R&D to civilian R&D, double the budget of the National Institute of Standards and Technology, earmark 10% to 20% of the budgets of the national laboratories to joint ventures with industry, establish a civilian technology agency to foster development of high-risk, high-payoff technologies in the private sector, encourage the establishment of consortia such as Sematech and make the R&D tax credit permanent.





The R&D payoff

"U.S. chip makers surging to front," trumpeted a Page 1 article two weeks ago [Nov. 8] in the *San Jose Mercury News*. The industry has turned back six years of global dominance by Japanese rivals, the newspaper reported, through "dogged pursuit of self-interest and its ability to summon government help."

That may be a prescription for success for high-technology firms in the 1990s, said Andrew Procassini, president of the Semiconductor Industry Association in San Jose, Calif. In addition to helping the industry overcome unfair Japanese trade practices, Uncle Sam matches the industry's $100 million annual contribution to Sematech, the Austin, Texas-based consortium developing improved chip-making techniques, and adds millions more to semiconductor R&D, he said.

The companies have done their part as well. Between 1978 and 1991, semiconductor firms increased spending on R&D from 8% of sales to 13.3%, Procassini said. And U.S. companies developed high-margin microprocessors, application-specific integrated circuits and the like.

Reality check

Someone recently asked me if I agreed with analysts' consensus that Comdex would be a drag because 1992 had been so uneventful.

The question amazed me. How could anyone say this year was uneventful? True, there haven't been any big bangs along the lines of a Windows 3.0 or an AT&T breakup. But there have been enough controlled explosions to make this Comdex one of the most fascinating in years. Since the last Comdex, the following has happened:

• **Hardware price wars made 386/486 PC purchases a no-brainer**, even for home buyers. The sudden demise of the 286 and other old-generation technology is a major step toward laying the foundation for the crop of 32-bit software that's coming down the pike.

• **Windows cornered the mass market** and achieved the critical mass necessary to get all the critical applications on the Windows platform. Its slam-dunk success on the low-end desktop has sent DOS development falling off the table faster than a bowling ball. Good thing, too, because innovation in the DOS market had become so painful that some vendors had even taken to writing their own graphical interfaces as an alternative to doing something interesting.

• **The Unix wars ended** as the Open Software Foundation and Unix International put to rest one of the silliest standards battles in memory. And Unix will need all the help it can get as the desktop operating system battle shifts to the high end.

• **Client/server took off like a rocket**, to the extent that virtually every large company is now actively developing or seriously considering client/server applications. In 10 years in the industry, I've never seen a concept catch on in corporate IS as fast as this one.

• **Object-oriented programming came of age** and brought with it real opportunities for major advances in programming productivity. IS people should be on this stuff like a pack of wolves.

• **Advances in portability** have brought computers within the reach of 25 million mobile professionals. The combination of high-capacity notebook devices — like the one I'm writing on, a Dell 386, 80M-byte machine that weighs about 3 pounds — and wireless networking will allow organizations to make a dent in the tremendous amount of downtime that's now wasted when people are on the road.

• **Voters elected a high-tech administration** with a president who doesn't think high-tech policy is a dirty word and a vice president who's been a vocal advocate of building high-speed information superhighways. There's a superb opportunity here for the country to reestablish its technology supremacy and build the kind of infrastructure needed to bring the benefits of information technology to consumers.

Yes, the economy's been a dead fish this year and maybe some of the vendors are suffering. But 1992 uneventful? Get real. I wish every year could be like this.

Paul Gillin, *Executive editor*

HP sets the record straight

Regarding "HP forms client/server division" [CW, Oct. 26]: Two quotes were taken out of context. Following a reference to Electronic Data Systems Corp., the quote "typically, they have not mapped well with our client/server solutions hurdle" was misleading.

EDS has played a very significant role in helping customers move to client/server computing, as evidenced by a recent $10 million fingerprinting EDS/Hewlett-Packard contract.

The article also noted that the HP program includes products from 50 vendors. In fact, HP's integrated client/server solutions consist of 50 components, five of which come from alliances with key third-party software vendors.

Sridhar Ramanathan
Cupertino, Calif.

Only kidding

I am writing in response to Alex Kelso's letter to the editor [CW, Oct. 26]: His assertions are completely unfounded.

To set the record straight, my article, "Technical dysfunction in systems professionals," is absolutely a humor-type article. The Data Processing Management Association (DPMA) was not used as an "example" of anything as Mr. Kelso stated but was included for two reasons.

First, I wanted to indicate where I had met my acquaintance. Second, over the years, I have belonged to several professional organizations because of my high regard for their membership. In fact, I especially noted DPMA in my article to establish part of my acquaintance's superior technical credentials.

I reiterate my strong support for all professional organizations of quality.

Sheryl Kay
Tampa, Fla.

Missing the Macintosh

I am truly stunned that your Buyers' Scorecard on graphical user interfaces (GUI) [CW, Nov. 2] omitted the Apple Macintosh, which pioneered the market! I can understand omitting Desqview/X (which you explained) and NextStep (which you do not even mention).

But Apple desktops number close to 10 million. Moreover, the Macintosh GUI remains the standard against which others must be measured. I have more than a year's hands-on experience with Motif, OpenLook and DECwindows; I have also used NextStep, Desqview/X and Windows. I have written extensively on several of these products.

Your respondents agree with my own preference in the reviewed products — I would much rather use OpenLook than Windows or Motif. But I run my consulting firm using a Macintosh network, and it must be 10 times a day I say to myself, "Thank God I'm using a Mac rather than MS-Windows or X Windows!"

Andrew D. Wolfe Jr.
President
LIPA Strategic Technologies
Salem, Mass.

CASE Communique corrections

Regarding your coverage of the CASE World '92 exhibition, "CASE show goes beyond technology" [CW, Oct. 5], and CASE Communique: CASE Communique, not Hewlett-Packard, hosted the CASE World '92 CASE Communique panel discussion.

CASE Communique was formed in October 1991 as an industrywide, open forum for creating standard specifications to enable CASE tools to work together more effectively in multivendor development environments, independent of the underlying framework technology.

Also, it was incorrectly stated in the article that our group "promotes SoftBench as a Unix CASE framework over ToolTalk from Sun Microsystems, Inc."

In fact, the rules and regulations agreed to by every participant in CASE Communique specifically state that membership in CASE Communique in no way constitutes an endorsement of any commercial product or a service produced or distributed by CASE Communique members.

Edie Bailey
Fort Collins, Colo.

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An open letter to Bill Clinton

Arlen R. Lessin

First of all, President-elect Bill Clinton, congratulations on your election victory. And now I want to suggest a vital preinaugural good deed you can perform to activate root-level change and help rebuild the national industrial infrastructure.

What I have in mind is a program for technology entrepreneurs similar to the Head Start program, which allows U.S. children to benefit from early childhood education. Such an early-stage investment program has been proposed and sidetracked, yet it urgently deserves support. I appeal to you to endorse this critical and underaddressed issue before your inauguration.

Earlier this year, a nonpartisan National Science Foundation panel, chaired by former Secretary of Defense Harold Brown, proposed a privately administered, federally seeded Civilian Technology Corp. (CTC), which would have the job of actively promoting the success of high-tech innovators at the idea/concept stage.

The government investment required would be modest: what has been proposed is a $5 billion firing-up appropriation. After that, private sector operations would take command, and the enterprise would be self-funded from patent licensing fees, stock holdings and loan interest payments. As a self-supporting, nongovernment program, CTC would not be prey to the traditional critics of government funding.

CTC would operate outside government interference and could not be eliminated by Congress for at least 10 years. This would permit objective

PHILIP ANDERSON

support and promotion of technologies based solely on merit and commercial potential. Investments would be made at the very early, critical stage when the majority of enterprising innovators meet financial defeat and must give up.

Earlier this year, I discussed the CTC proposal with Vice President-elect Albert Gore as well as Sen. George Mitchell (D-Maine) and Sen. Ernest Hollings (D-S.C.). Hollings heads the Senate Commerce Committee, which would recommend CTC as legislation. At the time, he said that although he favored CTC, he did not feel he could get the bill passed in the last session because President George Bush would have vetoed it.

Gore and Mitchell told me this situation prompted them to propose an alternative $60 million bill. I believe that this bill, as yet unenacted, is inadequate.

I have not discussed CTC with Sen. Robert Dole (R-Kan.), although I know from previous contacts that he supports technology initiatives. Some fine-tuning will be necessary, but I would hope to see nonpartisan congressional agreement with the CTC concept based on its apolitical nature and its clear-cut potential to aid the U.S.

The CTC Head Start program for U.S. innovators would encourage a critically required reseeding of U.S. technology at the grass-roots level. There are tens of thousands of Americans with potentially valuable ideas and inventions fruitlessly seeking start-up assistance. These people could be the basis for a bumper crop of new enterprises, products and jobs.

Mr. Clinton, in your election night address, you reiterated key words from the 1992 Democratic platform: "Economic growth will not come without a national economic strategy to invest in people." Your committed support and active endorsement of CTC could powerfully and concretely show your resolve to a waiting electorate.

Lessin is chairman of the Association for Information Management and New York-based Lessin Technology Group.

Clone maker IBM may kill monolith IBM

FIRE WATCH *by* John Gantz

It is a sign of the times and a warning of scary passages to come: IBM wants to be a clone vendor. If it succeeds, as it likely will, users will have to make some adjustments because such a change will rip the fabric of the systems business and probably signal the end of IBM as we know it.

The story begins with an agreement between IBM and Intel that allows IBM to co-design variations of the X86 architecture. While the agreement has been long-standing, the first fruit from IBM under the pact was the 386SLC chip, introduced in Models 56 and 57 of the Personal System/2 line earlier this year.

The 386SLC is similar to the Intel 80386SX (32-bit core, 16-bit bus), but it has an 8K-byte internal cache similar to the 1486. As a result, it's quite a bit faster than the 386SX at the same clock speed.

This fall, Big Blue introduced more IBM-designed Intel chips, namely the 486SLC2 chip, as a second generation for the PS/2 Models 56 and 57, and the 486SLC — the former chip without clock-doubler circuitry — in the ThinkPad 700C notebook computer. The 486SLC2 is a 3.3-V chip with 16K bytes of internal cache — larger than Intel's. It's a screamer.

This means that come spring, when volumes are up on the IBM 486SLC2, IBM will have an excellent chip to pop into next-release ThinkPads and may then have the best 486 notebook computer with an active-matrix display in the market.

Now for the clone part. By the nature of its agreement, IBM is not allowed to sell chips in competition with Intel, but it can sell boards. The word on the street is that IBM is actively looking to sign up OEM customers who would be interested in buying chips premounted in motherboards of either IBM's or their own design — putting IBM in direct competition with Intel.

Such a chip would be of interest to Far East notebook vendors that are not expecting to see even samples of the rival Intel chip, the 486SL, until spring and volume supplies until summer. By that time, first-tier players such as Compaq and Toshiba will already be in the market.

If IBM can bring an Intel chip to market sooner than Intel, it will find customers — particularly OEMs that want to have favored customer status when 50- and 100-MHz chips come out. Intel's premier customer is suddenly a competitor.

For users, the immediate prospects are good: better notebook computers cheaper and sooner — unless, of course, they have just committed to a large purchase from one of the vendors IBM shoulders aside with its leading-edge products.

The long-term prospects are scarier. Not only is there the increased overhead of doing business in a world so complex that it has IBM selling motherboards to manufacturers, but there is also the specter of the disintegration of IBM.

As the various IBM "companies" search for strongholds in the market by selling to OEMs, they'll begin competing with one another without the adjudicating influence of a single IBM sales force. They can't help but become very separate companies, not the ersatz separate companies they are now. Then that comforting blanket of one-stop shopping with an IBM tuned to the needs of the corporate customer and the IS shop is shredded to pieces.

It is one thing for IBM to want to make Intel chips to secure the best designs for itself, but it is quite another to sell them to others. Believe me, the IBM SLC2 is a bellwether chip. IBM the monolith is disappearing.

Gantz is senior vice president at International Data Corp., where he is responsible for all research and consulting to desktop automation and workgroup and office computing.

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Charles Babcock

OSF to fill software gap

I was talking with Carl Zeigler, the iconoclastic Unix guru at the SAS Institute in Cary, N.C., and true to form, he was pushing the envelope of public discourse: "I keep urging the Open Software Foundation to drop work on the OSF/1 kernel. It's only a way of getting DEC and IBM to fund the technology that goes into HP's HP/UX."

Carl, who works for a company that is not a member of the OSF, was cheerfully warming to the task: "OSF has a credibility problem. I want the things that OSF provides, but I don't know that I need OSF to provide them."

These are unrewarding times for the OSF, my candidate for forsaken stepchild of the year. In fact, the role of the OSF is so poorly understood that its future may be challenged even as its contributions begin to make themselves felt.

The OSF was not set up as a software institute to produce a set of discrete products. Rather, it is an industry collaboration for defining a set of specifications and adapting a set of technologies that implement them. If assembled rigorously enough, these specifications and technologies will be built into many vendors' products and will allow their customers to develop applications that can run across multivendor environments.

This means the OSF is creating, for want of a better term, "middleware" — the Distributed Computing Environment (DCE) and the Distributed Management Environment (DME).

DCE provides security, threads, a distributed naming service, file sharing and remote procedure calls for applications to operate across dissimilar systems.

DME uses an object request brokering system to achieve a logical view of a network that supersedes single-vendor and single-platform views. A systems manager can then manage the network through one consistent interface, OSF/Motif.

Because of plug-in points provided by DEC, you will have the option of getting your application to share data and work with other applications across the network.

So why isn't the OSF a huge success selling middleware? That's not its job. It only produces the specifications and source code to accomplish these things, then turns them over to its members.

It is the member companies that must build DCE and DME into their products. With the third release of DCE due in the first quarter of 1993, this process is well under way at DEC, IBM and HP. (The first release of DME is slated for September 1993.)

So the OSF is doing something quite different from standards formulation. Instead of assembling widely used and politically acceptable technology under an umbrella, such as Posix or OSI, the OSF is bringing new technology to bear on difficult issues of distributed computing. DCE and DME may one day be accepted as standards, but first they must prove their technical wherewithal.

"We have been watching OSF with acute interest. It may show us how to avoid developing something three times," says John Burton, president of Legent Corp., the Vienna, Va., systems software house.

To return to Carl Zeigler and the SAS Institute, I had to agree that the OSF has an imperfect technology selection process. But how, I asked, are we going to fund the development of middleware if we don't do it through a quasi-government agency like the OSF?

"You got me there," he conceded.

In fact, development houses with the resources — Oracle, Computer Associates, Lotus and Microsoft — have been developing their own middleware for some time. The rub here is that their middleware is designed to extend their products first and the independence of the customer second. Until somebody comes up with a better idea, the OSF or some agent like it will be a fixture of the software industry.

Babcock is *Computerworld*'s technology editor.

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New sounds

Noisy debut for Audioman

By Christopher Lindquist

If you are sensible about the future of PCs, you are probably sensitive to the fact that people are coming to their senses about the sensational potential of giving computers sensory perceptions. Nonsense, you say? Logitech, Inc. is betting you will change your mind.

Logitech has spent years giving computers a sense of touch, through mice and trackballs, and sight, with scanners and digital cameras. Now it wants to add to its "Senseware" line by giving computers u means to hear via Audioman, its entry into the burgeoning "business audio" peripherals market.

> Audioman is easy to set up and ase, requiring no screw drivers or complex installation soft ware, according to one aser

Audioman is a portable, self-contained unit that includes u speaker and microphone as well as audio input and output jacks. The unit plugs into the parallel port on any PC and runs on either battery or AC adapter power. A pass-through allows a printer to be attached to the port simultaneously with Audioman.

Business audio in this case means just that. Audioman is not meant for games, nor does it support MIDI files or compatibility with other sound cards. It plays .WAV files und comes with software that allows users to annotate sound, such as voice, into applications that support Object Linking and Embedding. And according to users, it does it well.

Comes in handy

"I think it's a great little product," said Randy Dugger, manager of the workstation/LAN support group at Tandem Computers, Inc. in Cupertino, Calif. "It fills a need that haso't been ad-

Audioman, *page 41*

A mixed report card

Hardware: B+
The best grade of the four categories, it pulled up the overall score. However, users found CD-ROM and high-volume printing capabilities uninpressive.

Software: B-
Users downgraded software because of weak development tools, particularly the lack of CASE options.

Networking: B-
Many of the respondents' negative comments centered on AppleTalk, but performance, network management and security also need work.

Support: C+
The worst of the four grade categories. Buyers were unhappy with post-sales support, citing dealers as inadequate sources for solving large-enterprise and multinational problems.

Overall: B-
Buyers said Apple can and must do better.

Source: Aberdeen Group

Users prove tough graders with Apple

By James Daly

Apple Computer, Inc. has received u report card from its corporate customers that leaves it shy of making the honor roll.

The report, the result of u survey of hundreds of Macintosh devotees by the Boston-based research firm Aberdeen Group, noted that while corporate users still have a high regard for Apple's hardware, they have quibbles with the available software and find networking with the Macintosh less than spectacular. Their harshest criticism was reserved for Apple's support — or lack thereof. Apple's overall grade: a B-.

"Buyers believe Apple can and must do better," the report read. "Clearly the company has work to do if it wants to be a major presence in large enterprise markets."

Not all the news, however, was glum. The very nature of the sampling, ranging from customers in small firms to large companies, suggested that Apple has already penetrated the dense and difficult wall of general corporate acceptance.

The report described the typical Macintosh corporate aser as one networked to one mainframe, two midrange machines (predominantly Digital Equipment Corp. VAX machines), a handful of peers and a database.

The surveyed sites had an average of 2,600 desktop machines, spld evenly among Macintoshes, PCs and other desktop devices such as workstations and terminals. Overall, 125,000 desktops were represented in the survey.

Apple took it on the chin most severely in the area of support. It was the only area in which Apple did not receive a single positive comment. "Post-sales support is nonexistent," one respondent grumbled. "Dealers can't cope with the complex questions large accounts need answers for." Another said: "Apple still doesn't get it."

The assessment should come as no surprise to Apple, which for years has heard complaints about its poor support from user groups such as Management Apple Computers in Information Systems. Apple is structured much like an automobile manufacturer, relying heavily on third-party distributors.

Users praised Apple's traditional ease-of-use stronghold hat warned that it can no longer rest oo its decade-old laurels. "Ease of use, Apple's hallmark trait of the 1980s, is just not competitive enough to win over large numbers of today's savvy — and ofteo IBM PC-committed — corporate buyers. Apple's efforts to market to the large enterprise are particularly critical now because buyers are locking in desktop-architecture decisions that will dictate buying patterns for the next several years," the report said.

While Microsoft Corp.'s Windows 3.0 and 3.1 have certainly narrowed the usability gap in this area, they are still not enough to woo longtime Macintosh fans. The report said few of Apple's corporate customers are enthusiastic about Windows and that most show little sign of abandoning Apple.

Still, there is no getting around the fact that work needs to be done if Apple is to continue to exploit its inroads in the corporate marketplace. The Macintosh has expanded beyond its toehold in the art department, but it is still far from being No. 1. Aberdeen Group estimated the overall corporate ratio is one Macintosh for every 12 PCs.

Networking was another area targeted for complaints. Users groused that Apple's built-in networking scheme, AppleTalk, was slow, proprietary and nonscalable.

The implications for Apple are not good, particularly in light of the survey's projection that corporate information systems budgets for next year will be flat or down.

Apple declined comment on the findings.

XDB-Link. The SQL Connection to DB2.

XDB Systems, Inc.

Users welcome Freelance Release 2.0

By Rosemary Cafasso

When Frank Arduini, a consulting manager at Baxter Healthcare Corp., was putting together a presentation last year with Lotus Development Corp.'s Freelance Graphics for Windows, he discovered that it had no template for organizational charts. Then he realized that he was limited by the types of lines he could draw.

While these were not big problems, they nonetheless really bugged him. But Arduini said these annoyances are fixed with Release 2.0, which he beta-tested and Lotus plans to begin shipping next month.

He said Release 2.0 is "evolutionary, not revolutionary," but the company did a good job in making it a better graphics package than the previous release.

"We had a whole list of things like that, and they were all taken care of," Arduini said.

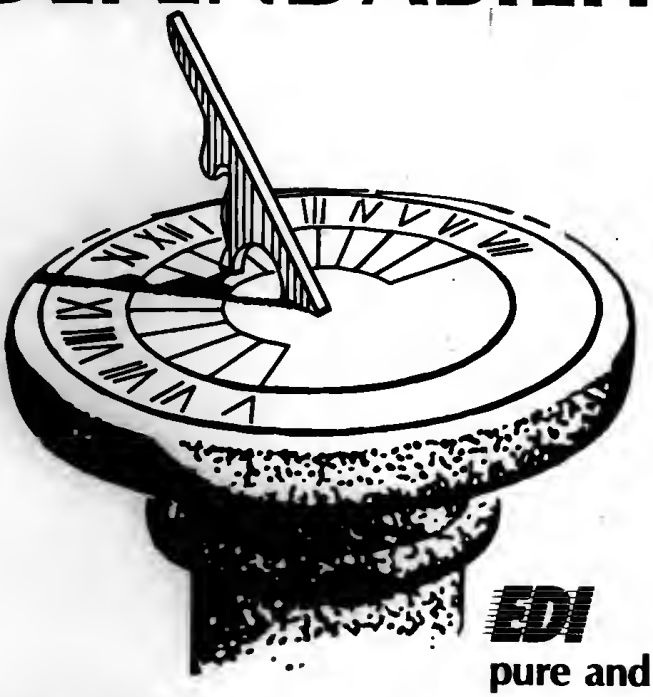
Freelance Graphics for Windows Release 2.0 is Lotus' second major effort in the Windows-based graphics market. It competes with Software Publishing Corp.'s Harvard Graphics and Microsoft Corp.'s Powerpoint.

Release 2.0 attempts to create an intuitive design environment so that professionals without graphics experience can quickly create presentations. For example, the software includes ready-made presentation page layouts that a user can simply fill in with data. Layouts can also be customized.

The software provides users with the option of using an outline facility, which appears on-screen as a page of a notebook, to create a presentation. Once completed, the outline is then translated into a chart. Or a user can create the presentation in the chart pages themselves.

Tony Gleicher, a marketing research manager at Pepsi Cola Co., said the software goes a long way toward helping make presentation preparation easier. He said the use of context-sensitive menus can be a big time saver because "you don't have to go searching the menu bar." Context-sensitive menus can be called with a mouse click and will reflect options based on the work in progress.

DEPENDABILITY



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Responding Globally

In Brief

Software sting

Federal marshals in Baltimore recently raided an electronic bulletin board that offered its subscribers the ability to illegally copy nearly 500 software programs. The raid came in the wake of a sting-type investigation. The operators could face stiff new penalties under recent legislation that provides up to five years' imprisonment and a $250,000 fine for copyright infringement.

SPA raids Vicon

The Software Publishers Association has announced the completion of a court-ordered raid on Vicon Industries, a maker of closed-circuit television components in Melville, N.Y. The firm had been accused of illegally pirating software. Vicon allegedly made unauthorized copies of several computer-aided design packages, reportedly employing a product specifically designed to break the copy protection devices on the software.

Sharp organizer debuts

Sharp Corp. has announced its latest pakstop organizer for the U.S. market, according to Tichiro Kataoka, products planning department manager at Sharp's Personal Equipment Division. The organizer — dubbed the [illegible] — is small enough to fit [illegible] inside pocket [illegible] touch screen [illegible] applications such as telephone directory, a scheduler, a to-do list, a scrapbook and a word processor.

Christopher Lindquist

Biting the bullet

The price of the 1M-byte SIMMs I need for my PC went up nearly 40% last week. Seems the government wants to protect the U.S. chip market by preventing Korea from dumping memory chips on our market.

The tariff isn't in effect yet, but the government has announced an intent to investigate and has imposed a bond on all chips imported from Korea. The result has been a drop in Korean memory imports and, therefore, higher prices — $15 per megabyte for me. The goal is to protect U.S. jobs, though the memory I was going to buy is Japanese. All it did was protect my bank account — I'll wait for the prices to drop again.

I certainly wasn't the only one who noticed the price increase. What may end up a trade battle between the U.S. and Korea is already a war of words on some bulletin boards.

Help or hindrance?

Part of the reason I want to get more memory is that I'm ready to load the OS/2 2.0 Service Pack on my home system and give it a try. The verdict still seems to be out on whether IBM's bug fix/upgrade package is a blessing or a bane. Some users love it. Others say they still can't install it and have all sorts of nasty words for IBM.

Of course, any of those disgruntled OS/2 2.0 users who want to give Windows NT a try still have a while to wait, unless they want to jump on the beta-test bandwagon. And if you want to do that, you'll want quite a machine. While Microsoft is stating that Windows NT will eventually run in 8M bytes of memory, the current beta test suggests 12, plus about 50M bytes of your disk space in program and swap files. Of course, you also need at least a 386.

Those of you with 286s can still run Windows 3.1 if you're not in a hurry. The requirement once again? Get more of that memory.

A lot of Windows users are running on 486 machines. And the issue of heat sinks and extra cooling fans to keep the faster chips running safely seems to be coming up quite a bit. The coosensus? Using a sink may not help, but it can't hurt.

One Symantec Norton Backup user was a bit surprised by the response he received from Symantec technical support when he requested info on support for a SCSI tape drive. They reportedly told him that the software supports only SCSI hard disks, not tape drives.

"When I asked them what use a backup program was that supports the disks but not the tapes, they merely repeated themselves," he said. To which a sympathetic respondent replied, "I'm surprised they didn't ask why you'd want to back up a tape drive."

Got any Comdex tales of dread? Send a message via MCI Mail at 549-8464, CompuServe with 72360,2005 or Internet under christ@-unixland.natick.ma.us.

Lindquist is a *Computerworld* West Coast correspondent.

NEC presents first pen computer with true PCMCIA compatibility

By Michael Fitzgerald
SOXBORO, MASS.

NEC Technologies, Inc. recently cast its hat in the pen computing hardware ring with its Ultralite Autograph, based on Intel Corp.'s 20-MHz 1486SL.

"The problem has been lack of hardware, so any announcement like this helps," said William Lempesis, editor of the newsletter "Pen Vision News" in Pleasanton, Calif.

> According to industry experts Ultralite Autograph could help jump-start the nascent pen-computing market

The Autograph features a 1.8-in., 40M- or 80M-byte hard drive, two Personal Computer Memory Card International Association (PCMCIA) cards and a local-bus video architecture. It uses Intel's new 20-MHz 486SL.

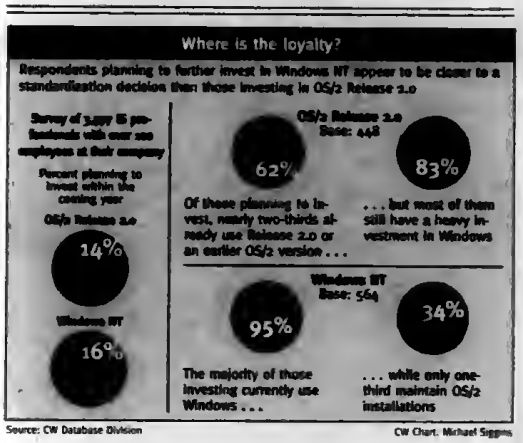
NEC claimed the Autograph was the first system to have true PCMCIA compatibility. The standard has been plagued by spotty software support and only recently developed a solid standard.

With this standard, "PCMCIA makes it as easy to install peripherals as it is to insert a floppy," said Renee Bader, NEC's director of strategic marketing.

While NEC already has a digitizer interface and pen attachment for one of its Ultralite notebooks, the Autograph is its first pen-only interface system.

Bader said NEC is "committed" to pen technology and plans more systems that use the pen interface.

The Autograph is slated to ship in January. Retail prices are $3,999 with Microsoft Corp.'s Windows for Pen Computing operating environment and $4,099 with Go Corp.'s PenPoint operating system.



Source: CW Database Division

CW Chart: Michael Siggins

Noisy debut for Audioman

CONTINUED FROM PAGE 39

dressed [by sound cards]."

Dugger said Audioman is easy to set up and use, requiring no screwdrivers or complex installation software.

That ease of use, combined with its portability — it can be quickly attached to a laptop computer — make it ideal for people who have wanted to give sound annotation capabilities to users but have not yet found a low-cost, nonintrusive means of doing so.

With easy-to-use tools and the advent of built-in audio capabilities from such system vendors as Compaq Computer Corp., sound annotation may move quickly from the realm of "gimmick" and into mainstream business, the users said.

"Sound does add the missing element that people sometimes need to express urgency in a message," said Sal Merchant, a PC specialist at Conner Peripherals, Inc. in San Jose, Calif. "I would say that it is something to look at seriously."

Merchant said he uses Audioman to voice-annotate Excel files that are then sent via electronic mail to other users. The annotation allows truly "human" stresses to be placed on instructions and helps eliminate misunderstandings.

Audioman is scheduled to be available next month for a list price of $179.

Reporter's Notebook

Top guns from the Big Three microcomputer software companies were in Boston recently for the Forrester Research, Inc. 1992 Technology Management Forum. While the conference's agenda was client/server computing, executives from Microsoft Corp., Lotus Development Corp. and Borland International, Inc. spoke more about desktop platforms. Here are some of their views:

Jim Manzi, chief executive officer of Lotus, reiterated the company's commitment to Microsoft's Windows NT. "We expect to have one of the first NT products out," Manzi said. First out of the Lotus box for this Microsoft platform: Notes, its workgroup computing software.

Manzi was not so kind when it came to Windows for Workgroups, which may or may not be a "Notes killer," depending on which industry viewpoint you hear. But Manzi made himself very clear: "It is not a full workgroup product. It's designed for dental offices that don't want to expand."

Curiously, then, Manzi added: "We will have apps to ship on it."

Asked by the Forrester audience if he believed Microsoft could trip as it delivers Windows for Workgroups or NT, Manzi said, "I light candles for that. I was never a religious guy until a year ago."

Philippe Kahn, Borland CEO, never strayed far from the subject of objects. But he did stress his company's commitment to OS/2, noting that ObjectVision is now shipping and a "final beta for C++ is out."

He also said Borland is "looking at" making Interbase for OS/2 2.0 available in 1993.

Then Kahn tossed IBM a backhanded compliment: "I believe OS/2 2.0 will be a successful server operating system." IBM has long been insisting that OS/2 will do well as both an end-user and a server operating system and claims a large chunk of the software sales so far have been to consumers.

Mike Maples, executive vice president at Microsoft, had little to say about OS/2. He was asked to explain and help differentiate the many flavors of Windows, including Windows 3.1, Windows for Workgroups and the yet-to-be-delivered Windows NT.

"If you have one PC, use Windows. More than one, use Windows for Workgroups. More powerful requirements, use NT," Maples said.

When asked which server operating system will be hot next year, Maples didn't surprise anyone with his claims for NT.

"On Intel-based servers, two-thirds will be running NT by year-end 1993.

"If you go out to 1996, every desk will be NT," Maples added. "Windows will have gone out to the consumers."

Computerworld staff writers contributed to this report.

[redacted]

Systems

Diamond Flower Electric Co. has introduced the 486-66DX2 Diamond Series Computer.

Both MS-DOS and Microsoft Corp.'s Windows 3.1 operating system are included with the desktop model.

Other features accompanying the product are 4M bytes of random-access memory, a 1.2M- and a 1.44M-byte floppy disk drive, a 200M-byte hard disk drive, two serial ports, one parallel port, 1M-byte video RAM, a 1,024 by 768 noninterlaced color monitor, a 101-key board and a Diamond Flower Electric mouse, the company reported.

The 486-66DX2 costs $4,539.

➤*Diamond Flower Electric*
135 Mo in Ave.
Sacramento, Calif. 95838
(916) 568-1234

Application packages

Contact Software International, Inc. has announced 1stACT for Windows, a contact management software product.

A contact database, activity manager, report generator and auto-dialer are integrated within the product. A full-featured word processor with spell-checker and mail-merge capability are also included. Industry-standard dBase-compatible file structures are incorporated for activity, contact and history data, and 1stACT has built-in import capabilities to automate the process of exchanging data with other ACT products.

Microsoft Corp.'s Windows 3.0 or 3.1 or DOS Version 3.1 or higher are required as well as 2M bytes of system memory and hard disk space and one high-density 5¼-in. or any 3½-in. disk drive.

1stACT for Windows costs $149.

➤*Contact Software International*
Suite 200
1840 Hutton Drive
Carrollton, Texas 75006
(214) 919-9500

Peripherals

Procom Technology, Inc. has announced the Procom ISA SCSI Xelerator, a Small Computer Systems Interface (SCSI) host adapter for PC compatibles.

The Xelerator offers a Fast SCSI XT/AT bus-mastering interface that is capable of user selectable transfer rates of up to 10M bytes per second, according to the company.

Other features include disk spanning and striping, transparent disk mirroring, multiple formatting, password protection, virus protection and selectable boot drive.

A configurable virtual drive engine is provided that is capable of dispersing multiple I/Os to a number of independent disk drives.

The product can also automatically detect and reassign bad block-on-the-fly as well as automatically restore the mirror state in case a system power failure occurs.

The Xelerator costs $359.

➤*Procom Technology*
2181 Dupont Drive
Irvine, Calif. 92715
(714) 852-1000

Data I/O Corp. has introduced the CardPro Universal PC Card Drive.

Through memory cards, the product permits the transfer of data from mobile computing systems to desktop PCs.

The drive supports all mobile computing systems and every memory and I/O card conforming to Personal Computer Memory Card International Association standard 2.0, the company reported.

CardPro costs $450.

➤*Data I/O*
10525 Willows Road N.E.
Redmond, Wash. 98073
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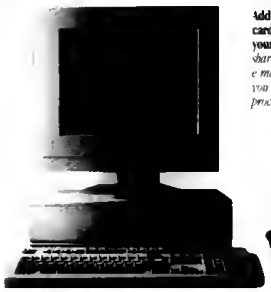
If you're looking for a computer that will grow with your needs, there are basically only two ways you can go.

The hard way.

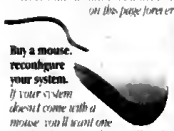


Add networking card, reconfigure your system. *To share files and send e-mail to other PCs you may hope to add a card. This means going through the long, tedious process of reconfiguring your system. On a Mac, you just plug in a cable.*

Upgrade your memory, reconfigure your system. *Add memory to a Mac, and it reconfigures itself accordingly. But add memory to a PC, and you'll almost always have to run a setup program to configure the new memory – or the computer won't know what to do with it.*

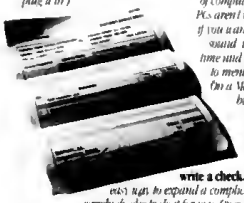
Add Windows, buy a new PC. *Most PCs in use today weren't designed for graphical computing. So if you want to run Windows, you may have to buy a new computer. Why not consider a Macintosh and avoid all the problems on this page forever?*

Add almost anything, reconfigure your system. *Expanding your PC's capabilities can be amazingly frustrating. But a Macintosh easily adjusts to whatever extra device you add to it.*



Buy a mouse, reconfigure your system. *If your system doesn't come with a mouse, you'll want one. But first be prepared to install and configure a special software driver. (No need with a Mac – you just plug it in.)*

Play and record sounds, reconfigure your system. *Multimedia promises to be the future of computing. But most PCs aren't ready for it. So if you want to work with sound, it'll cost you time and trouble – not to mention money. On a Mac, sound is built in.*

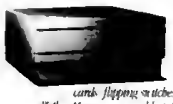


Call for help, write a check. *There is one easy way to expand a complicated PC – hire somebody else to do it for you. Over time, of course, that can wind up costing you more than the PC.*

Expand your PC, take two aspirin. *Inevitably, you'll want to expand your computer's capabilities by adding extra devices. The more instructions you slog through and switches you fiddle with, the more time it will take. And the more pain reliever you'll need.*

Change monitors, reconfigure your system. *Add a new monitor and you'll have to reconfigure your entire system or your monitor could look like this one. A Mac recognizes a new monitor and adjusts to it automatically.*

Whoops! *When you add something to an ordinary PC, you may have to reconfigure your system – a process of hardware and software adjustments, which can be complex, tedious, and take up hours of your time.*



Add peripherals, reconfigure your system for each one. *Want to add a CD-ROM or hard disk drive? Then prepare to spend hours installing cards, flipping switches and editing files – for each one. With a Mac, you can add up to seven peripherals by simply plugging them in and clicking a button or two.*

Manual labor. *Software like Windows purports to make things easier. But the reality is, you'll still spend hours reading manuals just to make it all work – time you could spend doing more useful things with your computer.*

Add printer, adjust DIP switches. *Hooking up a printer seems easy. Until you set your DIP switches, install your driver, locate your Windows diskettes, make an error and start all over again.*

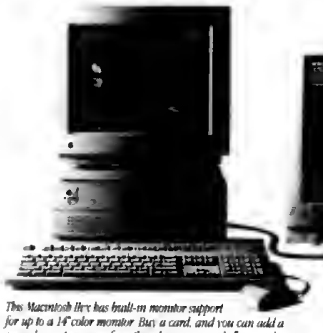
On a typical PC, even adding a simple hard disk can be extraordinarily complicated. You'll probably have to "reconfigure" your system – the time-consuming process of telling your computer what pieces you've added. You may have to edit complex CONFIG.SYS and SYSTEM.INI files, install special device drivers and fiddle with DIP switches. And, of course, building even a basic network is extremely difficult – what with installing

The easy way.

Macintosh *is designed to make it easy to grow. Networking and sound support are already built in. File-sharing and multimedia capabilities are standard. So is support for up to seven peripherals. Which means you can add everything you see on the other page to this Macintosh IIcx without using up a single expansion slot. Leaving room for things like an accelerator card, an Ethernet or Token Ring card or other cards that allow you to customize a Mac for high-performance or specialized tasks.*

cards and networking software. An Apple® Macintosh, on the other hand, knows when you've added a hard drive. Installing a CD-ROM drive or scanner is a matter of plugging in a cable and clicking a couple of buttons. Even installing a network requires nothing more than plugging one Mac® into another. It's just one more example of how a Macintosh works in a simple, logical way. So you can, too.

If you know how to use a plug, you know how to expand a Macintosh.



This Macintosh IIvx has built-in monitor support for up to a 14" color monitor. Buy a card, and you can add a *second* monitor – significantly enlarging your desktop work area so you can move documents, files and folders across both screens.

Plug in an AppleCD™ 300 CD-ROM drive, and you'll have access to huge libraries of reference sources, fonts, clip art and video images on CD. (It even supports Kodak's exciting new Photo CD technology.)

A Mac gives you professional-quality documents even if you're on a student budget. Just plug in an Apple StyleWriter™ printer.

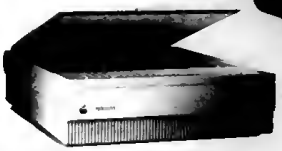
You can easily record sound into every new Macintosh computer. Most even come with a microphone.

Plug in an Apple Personal LaserWriter™ NTR, and everyone in your workgroup will have access to the fastest printer in its class. (It works with PCs, too.)

Plug in a SyQuest drive, and you'll have virtually unlimited hard drive storage via removable 44MB or 88MB cartridges.

Plug in an Apple LaserWriter IIg, and everyone on your network will instantly be able to take advantage of the Apple PhotoGrade™ technology that rivals 1000 dpi printers costing thousands more – for spectacular looking documents.

Plug in an external hard drive or other storage device, and you increase your storage capacity in seconds.



Plug in an Apple One™scanner™ and you can add beautiful black-and-white photographs to your documents with one touch of a button. No fussing or fiddling required.

Adding a peripheral to a Mac is as easy as using one. Plug it in, click a couple of buttons and get back to work.

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New workgroup player

By Maryfran Johnson
PALO ALTO, CALIF

Unix and office productivity applications are still an odd couple in the world of workgroup computing, but this burgeoning $3 billion market is attracting a crowd of would-be matchmakers these days.

While PC software goliaths Microsoft Corp. and Lotus Development Corp. seek to inherit this market with products such as Windows for Workgroups and Lotus' Notes, some comparatively small Unix vendors are also getting in line.

One high-hopes contender is XSoft, a software division of Xerox Corp.

Earlier this fall, XSoft unveiled a number of office productivity applications for the X Window System environment, plus document search and retrieval products, publishing software and a utility that allows Windows users to connect to XSoft's document services. Its flagship product is the $1,495 GlobalView for X suite of document management products for Unix, now installed in beta-test sites and slated for shipment in early 1993.

GlobalView's personal productivity tools help users create documents quickly, present information, automate forms in routine tasks and interoperate with third-party applications such as Lotus' 1-2-3.

In other words, they do the sort of things Unix users often turn to PCs and Apple Computer, Inc. Macintoshes to accomplish.

The XSoft document software currently runs on Xerox 6085 and 6500 workstations, Sun Microsystems, Inc. SPARCstations and PCs running OS/2 and The Santa Cruz Operation's SCO Unix.

Market make-over

The market XSoft addresses is undergoing a significant transition now, said Krystyna Filistowicz, director of business applications at Dataquest, Inc. in San Jose, Calif. "It's moving from the old office software market to the new definitions of workgroup computing or groupware," she said.

Now pegged at $3 billion in size, the workgroup software market could treble to $10 billion by 1996, Filistowicz said.

"XSoft is a very tiny player right now, initially focused only on Unix but now extending to encompass Windows users. That's a wise move," she added. "But they're on a tightrope of sorts. They want to shed the legacy Xerox reputation, which is mostly negative on the desktop, yet still leverage the work coming out of Xerox PARC."

XSoft has managed to do some technology transfer already, said Steve Unger, manager of office applications marketing at XSoft. For example, an offshoot of some Xerox Palo Alto Research Center (PARC) research became the "Rooms" desktop manager utility that is built into GlobalView for X.

One beta-test user of GlobalView is ITT Federal Services, which handles all engineering work for the missile and aircraft test range at California's Vandenberg Air Force Base.

"We're now able to do document review on-line and then electronically transfer the data between us and the government and the engineers developing the documents," said Bill Smith, deputy director of engineering at ITT, which has GlobalView for X running on a network of 10 Xerox workstations.

The software also helps ITT comply with the requirements of the government's Computer-Aided Logistics Support standard for electronic document interchange, Smith said.

Another benefit is the flexibility of being able to transfer data more easily to other platforms, such as Digital Equipment Corp. VAXs and other Unix-based workstations, he said. "Over the long run, we think this will save us and the government time — which is money," Smith explained. "We won't have to produce nearly as many documents in hard copy as we do today."

XSoft
A division of Xerox

Lines of business: Document software, including office applications, publishing, document services, search and retrieval tools and personal productivity tools.

Competitors: Applix, Inc., Clarity Software, Inc., Island Graphics Corp., Uniplex Ltd. and Frame Technology Corp.

ON SITE

Law firm makes strong imaging case

Anderson & Co.
New York

Business challenge: To develop a network-based integrated imaging application

Technology: Executech's IMAXS and LaserData's LaserView imaging software, Gupta's NLM SQL database engine, Microsoft's Windows 3.1 and Novell's NetWare v3.11.

By Thomas Hoffman
NEW YORK

Anderson & Co. might be one of the smaller law firms in the Wall Street district, but the company's savvy use of image technology is helping it stand tall among lower Manhattan's legal giants.

The 36-person firm focuses primarily on insurance and reinsurance litigation cases. Founded in 1984 by A. Broadus Anderson III and a handful of partners, the firm prides itself as being one of the least expensive law firms around Wall Street, according to Anderson.

Earlier this year, Anderson and his staff began to study the merits of adding a network integrated image processing application designed to provide the legal staff with instantaneous access to case documents. Such a system, Anderson said, would enable the legal staff to locate case information in a fraction of the time it took to scour case documents manually.

Cost justification

"We realized that we could be much more efficient as litigators and bring our clients' costs down," Anderson said.

Anderson added

Anderson, *page 47*

$73 211 538 664

By the end of this week Computerworld readers will have spent over $73.2 Billion on Information Technology this year – representing nearly half of all IT spending to date in 1992.

COMPUTERWORLD

Intel eases LAN control

LANDesk applications enable LAN management from a single console

By Michele Dostert

LAN managers who currently use several consoles to manage their Novell, Inc. local-area networks will soon be able to centralize their management on one PC.

Intel Corp. has begun beta-testing its new LANDesk family of LAN management software products, which provide a single point of control for a variety of node management tools for Novell NetWare 3.X networks.

Early beta testers of the product were enthusiastic. "What I like about LANDesk is the single point of control for a number of solutions," said Glen Farrell, a programmer/analyst at Firestone Textiles in Ontario. "I can tell everything I need to know about the network instantaneously, without leaving my desk."

The LANDesk family includes the LANDesk Manager, a local environment that provides core network management software under a single Microsoft Corp. Windows-based interface, and a line of companion software to expand the LANDesk Manager's capabilities. These will include the LANDesk Inventory Manager software for hardware/software inventory and an application for continuous virus protection.

Single-agent design

The LANDesk Manager software employs a single agent running on LAN nodes to provide remote control and access, application monitoring, packet monitoring, virus protection and Windows-based access to standard NetWare administration utilities. The single-agent design provides simplified installation and low-memory overhead — less than 6K bytes — at user workstations.

According to Intel, the LANDesk family will include a Simple Network Management Protocol (SNMP) gateway that will enable LANDesk to report to SNMP-based management environments, such as those from Sun Microsystems, Inc. and Hewlett-Packard Co. Future versions of the LANDesk software will also support the Desktop Management Task Force application programming interface when a reference implementation becomes available.

"I was really impressed by LANDesk's ability to track network performance by application. That's an incredibly valuable tool for network managers," said Diane Danielle, an independent network consultant in Berkeley, Calif.

"It tells [the network manager] that either there's something wrong with how the application is installed or maybe he needs an application server or whatever. It shows that Intel is thinking of network management from the systems management perspective, which has been sadly lacking in LANs up to now," Danielle added.

Intel's LANDesk family of products is scheduled to be available in early 1993 through Intel's network of distributors and value-added resellers.

In Brief

Product automates E-mail delivery

Employees at Sun Microsystems Computer Corp. in Mountain View, Calif., have their electronic mail automatically sorted, prioritized and forwarded with the help of Personal Postmaster, a software product for Sun workstations from Qualix Group, Inc. in San Mateo, Calif. Sun signed a worldwide site license agreement with Qualix Group in August. Personal Postmaster was designed for the Solaris operating environment and standard Unix E-mail.

LAN prices drop

The cost of bridging Ethernet and Fiber Distributed Data Interface (FDDI) local-area networks dropped last week when Synernetics, Inc. in North Billerica, Mass., lowered prices on several workgroup models of LANplex 5000 Ethernet switching hubs. The LANplex 5004, which includes eight switched Ethernet networks plus an FDDI network interface, is now priced at $25,800, including software. Without FDDI it costs $16,800, an 18% price decrease.

Company profits from the weather

Concurrent Computer Corp. recently announced a contract with a potential value of more than $80 million for its role in Nexrad, a weather radar, storm tracking system sponsored by the U.S. departments of Commerce, Transportation and Defense. Under the contract from Paramax Systems Corp., Concurrent will install its real-time minicomputer systems at up to 175 sites.

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With the help of EDS, Riser Foods answered yes. Supermarket chain Riser Foods has become a regional powerhouse thanks, in part, to a new information technology system integrated by EDS.

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The EDS system also cuts the time it takes for stores to order and receive merchandise. Orders entered directly into

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Law firm makes strong case for integrated imaging

CONTINUED FROM PAGE 45

that he was dismayed to find few, if any, off-the-shelf, image-based legal applications that suited the firm's needs. "We looked at all the legal imaging applications out there, but what we were discovering were applications written the way computer programmers think legal professionals do work, and not how lawyers and paralegals actually do work," Anderson said.

Anderson and Sheldon B. Pressman, a partner in the firm, decided to develop the system specifications themselves and work with a third-party consultant who would write the application. The firm contracted Executech, Inc., a New York-based imaging systems integrator, to develop a Microsoft Corp. Windows-based image application.

Anderson plans to have 1 million documents stored by the end of 1993.

Software framework

The Windows-based imaging application, called IMAXS, is front-ended by LaserData, Inc.'s LaserView imaging software. Topic, a full-text search software engine developed by Verity, Inc., searches for information housed in a Gupta Corp. Network Loadable Module (NLM) SQL database.

Documents are scanned into the system using a LaserData scanner, compressed with a LaserData decompression/compression board and stored on 5.¼-in. optical discs housed in a Panasonic Co. jukebox. Information is routed through the network using a variety of six Intel Corp. 1486-based PC servers, including PCs from Dell Computer Corp. and Northgate Computer Systems.

The imaging application went into production when it was added to the 3-year-old network in May. So far, the firm has stored 400,000 case documents on optical disc, with plans to have 1 million documents stored on the system by the end of 1993.

Time is money

According to Pressman, the imaging system has already helped the law firm work faster. In the past, it took a month for the firm to have several paralegals manually put case documents into chronological order at a cost of $25 per hour per paralegal, Pressman said. Using the imaging system, the process is completed in less than a minute.

"Paralegal and reproduction copying costs represent a large percentage of costs for legal clients. The imaging system has helped us to reduce these costs significantly," Pressman said.

Anderson said the firm is considering marketing the imaging application to other law firms through third-party channels. Anderson runs its operations in a Windows 3.1 environment over a Novell, Inc. NetWare v3.11 network operating system. The Novell-based local-area network also runs WordPerfect Corp.'s Office word processing software as the network operating system shell.

Anderson said the Windows environment is particularly useful for lawyers. "Windows is more intuitive than Nexus or Westlaw, which is good for computer-phobes because it's simple," Anderson said.

Network expedience

The networked environment, Anderson added, has enabled the firm to work more efficiently. In 1989, the firm dismissed its seven secretaries who were employed mainly to conduct word processing tasks. Once the legal staff was fully trained under the Novell/WordPerfect environment, the secretaries became expendable.

"We found that it was faster to do our own work on networked PCs than it was to delegate responsibility," Anderson said. "We're much more efficient without [secretaries]." The law firm continues to employ a file clerk, a receptionist and a LAN administrator.

Anderson and Pressman said they hope to see major technological advancements from Microsoft's upcoming NT operating system. Anderson said he hopes Windows NT will provide the multitasking capabilities Windows lacks.

"Right now, we can't toggle back and forth between the imaging system and the word processing system while the imaging system is conducting a search," Anderson said. "Hopefully, NT will provide us the flexibility to do that."

Market misread

Anderson & Co. discovered how vendors may misunderstand how users work when the law firm found a lack of Windows-based image applications that provided annotation capabilities. Of the programs that did include annotation, none allowed users to search through annotations in case revisions or updates were required, which is a feature that is important to attorneys.

grows, can you outmaneuver competitors?

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HELP LINE

Lotus' Notes

Part of a series of user tips provided by vendors and drawn from their customer support lines. This week's topic is Lotus Development Corp.'s Notes.

Q: What happens when one Notes document is edited by two users simultaneously on the same Notes server?

A: There is no document lock feature in Notes. When one person opens a document and makes a change, and another person opens the same document (before the first user has saved and exited it) and makes some change, the following will happen: The first person to save the document will have his changes written. When the second person attempts to save, Notes will warn, "Another copy of this document was saved while you were editing it," and ask the user whether to overwrite the first person's changes. If you are faced with this situation, you can opt not to overwrite the previously saved document (i.e., select "No" when asked "Overwrite it?"). Then select and copy your edits to the clipboard. Exit the document without saving your changes. Reopen the document and check the previous editor's changes and, if necessary, paste your changes to this copy of the document.

Q: What does "Error SYS:0252" mean when I'm loading Notes Server?

A: This message usually occurs on a machine that has installed both IBM's OS/2 Extended Edition and Novell, Inc.'s Requester, which is loading Novell's NetBIOS. It is caused by a conflict between a Novell Requester file called NETAPI.DLL and an IBM Communication Manager file with the same name.

To resolve the conflict, you must remove the directory C:MUGLIBDLL from the LIBPATH statement in the CONFIG.SYS file and make sure that the directory where the Novell NETAPI.DLL file is located is listed in the LIBPATH statement. You must reboot the machine after making the changes to the CONFIG.SYS file, and then you can start the Notes Server. To find out if you have installed the Extended Edition of OS/2, go to a full screen OS/2 prompt and type in SYSLEVEL.

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HP DAT triples its data transfer rate

By Mark Halper
LAS VEGAS

Hewlett-Packard Co. last week introduced a digital audio tape backup system that it said will provide close to three times the data transfer rate of the firm's current offering and will quadruple its longevity.

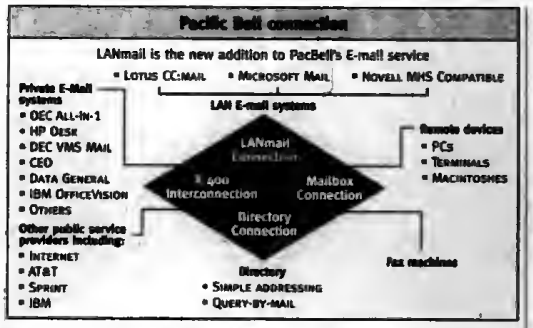
Robert Hill, marketing manager at HP's computer peripherals division in Bristol, England, said the 4mm HP C1532A will record at 510K byte/sec., compared with the 183K byte/sec. speed of the firm's current offering, HP35470A. The new unit, which will be commercially available in April or May, is rated at 200,000 hours mean time between failures vs. 50,000 hours for HP's existing model, Hill said.

The HP C1532A, which uses a Small Computer Systems Interface-II connection, is positioned for use with network servers, workstations and minicomputers. It will be made available to beta-test sites in January.

The existing model, packaged with tape backup software, is priced at $2,100. Initially, HP will not bundle the faster model with software because early users will be large operations that will want to integrate that function themselves, Hill said. HP will add a bundled option when it offers the tape drive through reseller channels.

At 510K byte/sec., the 4mm HP tape drive operates as fast as the fastest 8mm drives and faster than other 4mm drives, Hill claimed. Industry analysts speculated vendors may match HP's speed by the time the new drive ships six months from now.

Hill said the new drive provides 2G bytes of storage in noncompressed mode. It will compress some data — typically applications — at a 2-to-1 ratio and other data — that is in databases — at a 4-to-1 ratio. Storage capacity could reach 8G bytes.



Pac Bell offers E-mail service for LANs

By Lynda Radosevich

Users who are trying to glue together disparate electronic-mail systems have a new option open to them: Rather than investing in gateways, software and staff expertise, they can outsource their connectivity headaches to Pacific Bell.

Pacific Bell, a subsidiary of Pacific Telesis Group in San Francisco, introduced LANmail Connection last month for national and international users. The service provides directory synchronization and gateways for Lotus Development Corp.'s CC:Mail, Microsoft Corp.'s Mail and Novell, Inc.'s NetWare Message Handling System-compatible systems. All that is required to use it is a mail server equipped with a modem and a phone line.

The service "removes the overhead from the user side," said Nina Burns, president of Creative Networks, Inc. in Palo Alto, Calif. "It means users have a lower barrier of entry into electronic-mail integration."

Because of regulatory issues, Pacific Bell cannot provide long-distance services, and users must select a long-distance carrier separately. Analysts point out that these long-distance charges could significantly add to the cost of the service, depending on the amount of traffic. Pacific Bell said it reduced message costs to account for this.

Compared with the roughly $15,000 it would cost to install a dedicated X.400 gateway between agencies, the Pacific Bell solution was cheap, said Tom Laffey, E-mail administrator at the California Department of Forestry in Sacramento, Calif. Laffey estimated that the department is spending between $200 and $250 a month, including phone charges, for 80 users to send mail to other agencies in California

Pac Bell, *page 53*

Seeking a MIB for SNA nets

IBM, DEC, others look to manage SNA devices via SNMP

By Elisabeth Horwitt

■ Vendors of IBM Systems Network Architecture (SNA) networks – including, most recently, IBM itself – are banding together to come up with a standard for managing SNA devices via Simple Network Management Protocol (SNMP).

A consortium of about 17 vendors, formed last month, includes SNA gateway vendors such as Attachmate Corp., Digital Communications Associates, Inc., Digital Equipment Corp., Eicon Technology Corp., Novell, Inc., Adacom Corp., Apple Computer, Inc. subsidiary Orion Network Systems, Inc., Sun Microsystems, Inc. subsidiary SunConnect and Systems Strategies, Inc.

"It has been apparent to us that there is no standardized way to manage SNA gateways — i.e., to configure them or query them to see how many users are on them or what traffic or error levels are like," said Kevin Tolly, president of independent consulting and testing firm InterLab in Seagirt, N.J., and coordinator for the group. Users generally had to find out what was wrong with a gateway by going there in person, which is "not an ideal solution when [gateways] are sprinkled all over the enterprise," according to Tolly.

> The group plans to become a working group of the Internet Engineering Task Force

IBM announced recently that it would publish a management information base (MIB) for managing networks running its Advanced Peer-to-Peer Networking (APPN) protocol; however, the MIB does not include variables for managing more traditional, 3270-based SNA networks.

While it will definitely join, IBM is still evaluating whether the consortium is the right vehicle to open up its APPN MIB to the vendor community, an IBM spokeswoman said. IBM's proposed MIB would enable SNMP systems to manage nodes on an APPN-based multivendor internetwork. However, the consortium might provide an important missing piece: management of LAN devices that are attached to APPN nodes but do not directly use APPN protocols, Tolly indicated.

The consortium plans shortly to go through the process of becoming an Internet Engineering Task Force working group so it can make a formal MIB proposal to the SNMP standards body. The group should have a working document soon, given that members such as Eicon have draft documents in progress, Tolly said.

Another promising development is that Sync Research, Ring Access, Inc. and Netlink, Inc. have all expressed interest in joining the consortium, Tolly said. The vendors sell products that convert IBM Synchronous Data Link Control (SDLC) packets into a format that can travel over a local-area network.

These efforts should give users more choices for managing such products; however, some information systems managers said their companies will continue to use IBM's NetView to manage their SNA devices and SNMP to manage their LAN devices.

One such company is The Travelers Corp. Network control center technicians can manage Sync Research and Netlink devices using the same familiar NetView commands they use to manage IBM 3174 cluster controllers, said Robin Layland, manager of SNA software engineering at the insurance firm. Travelers is looking at IBM's SNMP-based NetView/6000 system to manage its LANs and routers, he added.

Similarly, mainframe IS managers at Pfizer, Inc. use NetView to manage Sync Research boxes and other SNA devices, while the LAN group uses SNMP for bridges and routers, according to Vinnie Costa, a data communications manager at the New York drug company. "It allows each group the best tools for its area," he said.

There is a good chance that the SDLC conversion vendors will develop a separate MIB rather than try to enhance the SNA gateway MIB to manage their products, Tolly said.

Management key re-engineering hurdle

By Joanie M. Wexler

When it comes to re-engineering networks to support distributed computing, managing the new infrastructure poses a bigger user challenge than constructing it, according to several companies that have embarked on network revamp projects.

"I think the industry has gotten over the connectivity issues and is worrying about management," said Don Rife, director of computer services at the Medical Center of Delaware, based in Wilmington. "And the state of integrated network management is greatly exaggerated."

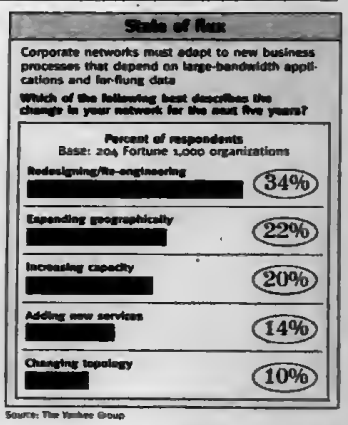
For example, Charles Stunson, chief information manager at U.S. Army Acquisition, a government agency that builds the army's research and development budget, said there is one thing missing in the client/server infrastructure his agency built: integrated management of hardware and applications.

He said he considers most management systems to be strongly oriented toward the vendor's equipment, so "the only way for complete management is for an independent vendor with the right alliances" to offer a solution.

Stunson told this to *Computerworld* at a recent seminar in Washington, D.C., conducted by Boston-based research firm The Yankee Group, on the ins and outs of the network metamorphoses accompanying business process revamps sweeping corporate America. At the event, Yankee's managing director, Howard Anderson, asserted that the "role of the new IS is to manage highly complex networks."

A hurdle facing information systems departments in this task, said Todd Dagres, vice president of data communications at Yankee, is that users bypassed IS for much of today's distributed, local-area network infrastructure. "Now the departments want to hand back to central IS the management of a function it never created," he said.

Re-engineering, *page 52*



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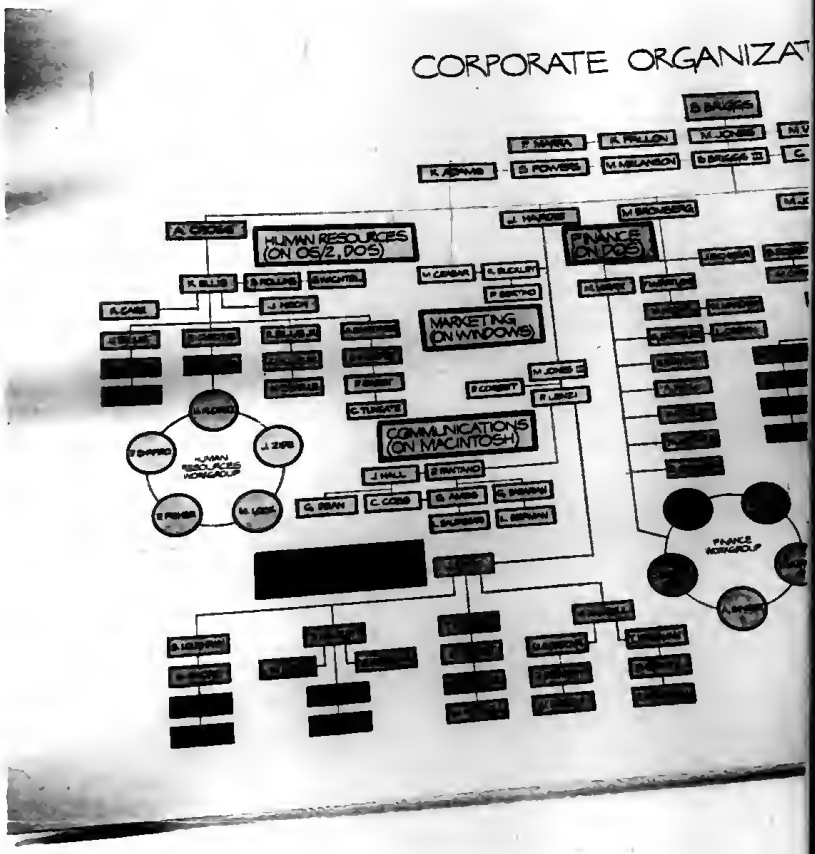

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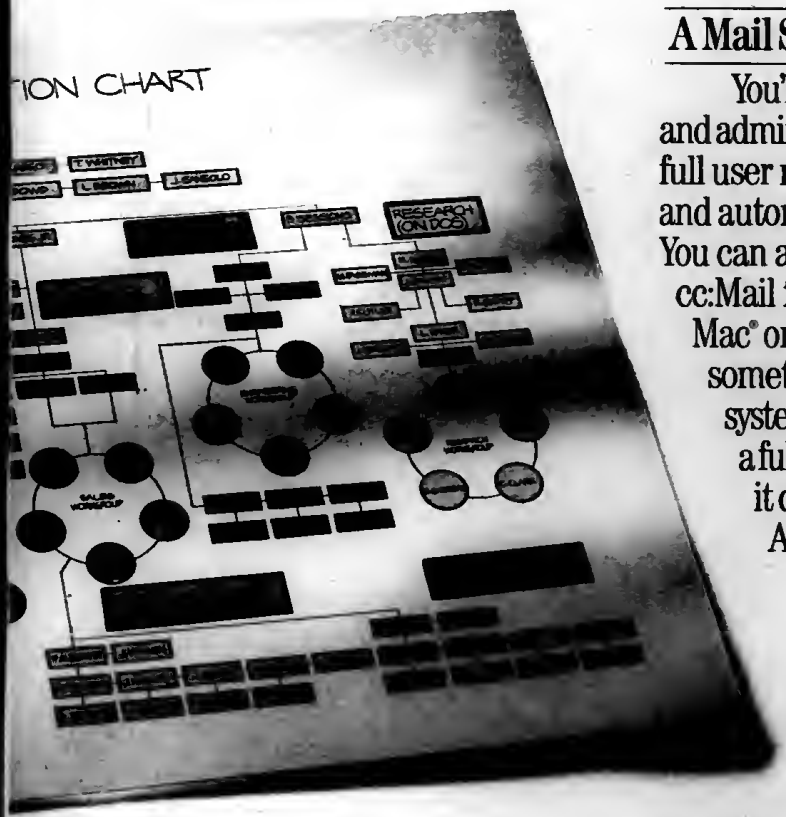

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Key re-engineering hurdle

CONTINUED FROM PAGE 49

This situation raises the question of who actually owns and manages the corporate network. "Where do I find management tools similar to those available in the mainframe environment for managing distributed data?" asked one IS manager at the conference.

Dagres replied that "nobody has rolled out a system that can plug in and manage the whole thing. Today, it is not possible to go out and buy an integrated network management system without doing a lot of customization."

Rife said his challenges are more managerial than technical. "If a carpenter arrives at my house, I don't expect him to have one tool for the whole job," he said. "I expect him to have a truckload of tools and the expertise to use all of them."

He added, "In the giant scheme of things, I couldn't care less about alerts [from a network management system]. I have 3,000 users who will alert me if something goes wrong. It's managing change that's the biggest challenge."

However, other users with more broad-reaching networks are concerned with tools. For example, "the wide-area equipment vendors need to support SNMP," the limited-function management capability widespread in today's LAN equipment, said Ed Ward, communications services manager at American Management Systems, a management consulting firm and software company in Arlington, Va.

Ward said two factors are driving his quest for getting a firmer grip on network management: Networked corporate applications have become mission-critical, and the business has become more geographically dispersed.

American Management network management today is basically "Novell-oriented and home-written," Ward said, adding that he is seeking a management system "more open" than Novell's NetWare Management System (NMS).

But NMS "is not approaching the maturity of others" such as Unix-based internetwork managers from Hewlett-Packard Co. and Sun Microsystems, Inc., he said.

Funny money

For some users, it can be difficult to gain funding for network management software, given that the paybacks are somewhat intangible.

However, the Medical Center of Delaware has an innovative approach: Its IS department collects onetime "network connection" fees from new users whose departments have fronted the costs as determined from an IS price list. The procedure removes the IS department from "the cost-justification business," explained Don Rife, director of computer services at the Wilmington, Del.-based facility.

For example, at the beginning of each fiscal year, departments pay IS $3,700 for any new users who require a medical center-standard workstation, word processing site license, LAN connection and mainframe access, he said.

Aside from eliminating network management cost-justification headaches, "I know what my demand will be for the next year. I know quantities, so I can negotiate discounts" with suppliers, he said.

Using this system, the medical center has deployed a $3 million network with "almost no IS funding."

—Joanie M. Wexler

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Pac Bell offers LAN E-mail service

CONTINUED FROM PAGE 49

and around the country. The department has been using the service since August and has not had a chance to measure messaging traffic or cost savings exactly, according to Laffey.

> Users can send a message to users inside or outside the company

"It is more expensive than nothing," which is what the agency spent to connect its E-mail systems before August, he said, "but it is definitely less expensive than buying our own gateway."

The main difference between this and other value-added E-mail services such as those provided by Sprint Corp. and MCI Communications Corp. is that LANmail supports more E-mail protocols and does not require additional software, said Randall Edminston, electronic messaging marketing manager at Pacific Bell.

Industry analysts agreed that the service may appeal to small companies and corporations with many satellite offices. But some said large, centralized companies will want the control of managing their own messaging backbone.

"E-mail public services are nice to reach beyond the corporations," said Mark Leary, director of communications research at International Data Corp.-Technology Investment Strategies Corp. "But anyone who thinks they will get better service for internal communications is probably misguided."

To use the LANmail service, a user on a CC:Mail system, for example, can send a message to a co-worker using Microsoft Mail. The message travels from the sender to the CC:Mail server, which then dials up LANmail Connection and transmits its messages. (The frequency of mail server/LANmail connections is programmed by the customer's mail administrator.)

Pacific Bell sends the message through X.400 gateways and stores it in the company's Microsoft Mail mailbox at Pacific Bell. The translation typically takes 10 minutes, according to Pacific Bell. The message is stored in the mailbox until the Microsoft Mail server makes a connection with Pacific Bell and picks up its messages. Pacific Bell takes care of synchronizing the mail directories.

Pacific Bell charges a onetime $25-per-LAN fee for LANmail setup and $10-per-LAN monthly services charges. Domestic use charges are 15 cents for typical messages of 1,000 characters or less. International use is 30 cents per 1,000 characters.

In Brief

EPA grants MCI contract

The U.S. Environmental Protection Agency (EPA) has awarded MCI Communications Corp. a five-year, $7 million contract for telecommunications services among domestic and international EPA locations. Voice and data services to be provided by MCI include the carrier's virtual private network service, local-area networking and MCI Mail.

Novell to finance Reach

Electronic-mail and work-flow developer Reach Software Corp. recently closed $4 million in a second round of financing, a deal that included Novell, Inc. as an investor.

Bell markets ISDN apps

Bell Atlantic Network Services and DigiBoard in Minneapolis said they have allied to jointly market the telephone company's Integrated Services Digital Network applications and DigiBoard's internetworking and telecommuting products.

DEC, Vitalink standardize

Router vendor Vitalink Communications Corp. recently said it has entered into an agreement with Digital Equipment Corp. to implement interoperability standards between the two companies' internetworking products and to cross-license their products.

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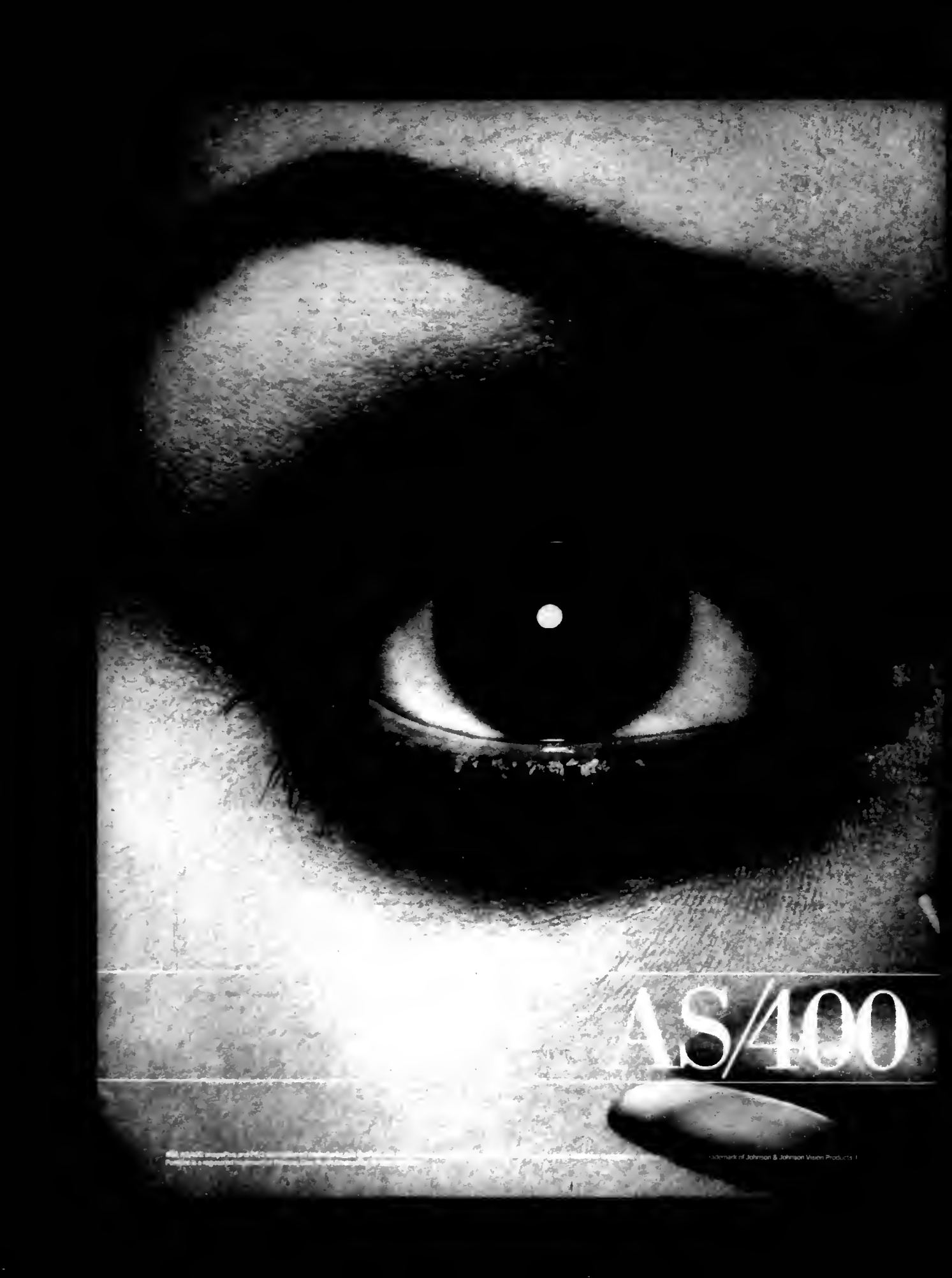
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Sybase System 10 answers user pleas

By Jean S. Bozman

Sybase, Inc. apparently took to heart information systems managers' concerns about day-to-day operations of on-line distributed database systems. Longtime Sybase users last week said their concerns about backup and recovery, database copies and performance were addressed by Sybase's recent announcement of its System 10 product lineup for 1993 [CW, Nov. 16].

System 10 addresses distributed database updates with its Replication Server and IS operational control with its Control Servers for backup, recovery and database tuning. Its SQL Server 10 database engine (formerly known as SQL Server 5.0) supports multigigabyte databases and faster processing.

But users will have to wait for System 10 features, some of which have been in development for two years.

The products have not yet passed beta tests and will be phased in during 1993, said Stewart Schuster, Sybase's vice president of marketing. He gave no pricing or shipment dates.

The System 10 test schedule means that most users will face some operational difficulties for several months. The Norton Co. in Worcester, Mass., a maker of abrasive wheel and grinding equipment, uses four Sybase SQL Server databases to run its manufacturing systems. But, under heavy work loads, the systems sometimes slow down, said Ron Beroll, a database project leader.

"If SQL Server were to speed up, it would help since the schedule program is taking longer to run when data volumes are high," Beroll said.

Backup and recovery is also a primary concern for production data on Sybase servers.

Database derby

Two approaches to distributed databases

	Two-phase commit	Replication
Methods:		
Characteristics:	PEER-TO-PEER SERVERS	MASTER/SLAVE SERVERS
	REAL-TIME UPDATES	NEAR-REAL-TIME UPDATES
	SYNCHRONOUS UPDATES	ASYNCHRONOUS UPDATES
	NEW TRANSACTIONS BLOCKED DURING UPDATE	CONTINUOUS SERVER OPERATION
Bottom line:	IS HAS LIMITED CONTROL OVER UPDATES	LETS IS CONTROL TIMING AND NETWORK TRAFFIC

Source: International Data Corp. CW Chart: Michael Siggins

Takes time

"Loading and dumping of data takes a disproportionately large amount of system resources and time," said Roland Klinger, database systems manager at Tri Valley Growers, Inc., a San Francisco food processing cooperative.

Klinger said he wants a separate application programming interface that would handle data dumps without affecting other database engine resources, which he believes is included in the System 10 Control Server feature.

Customer technology institutes, including one held by Sybase in February, gathered user concerns about IS operational issues, according to Paul Hamel, vice president of systems and planning at Textron Financial Corp., a Providence, R.I., division of Textron Corp.

"We're happy with the product direction, which

Sybase, *page 60*

Wang previews VS machines; unveils Unix software — finally

By Kim S. Nash
BOSTON

Wang Laboratories, Inc. surprised attendees at its recent user group conference with previews of three new VS minicomputers and Unix versions of key proprietary software products. The company also unveiled — finally — Open/Pace, a database/application development environment that runs on IBM's RISC System/6000 line.

The loudest and most oft-repeated message from Wang officials at the show was that the VS is not dead.

Despite laying off more than 2,000 workers since filing for Chapter 11 bankruptcy protection in August — with at least that many more employees still scheduled to be cut — Wang "still has significant resources behind the VS," said Peter Crenier, manager of VS systems marketing.

However, neither he nor other Wang officials would comment on the size of the VS' research and development staff or budget, and some users expressed doubt that the VS is long for this world.

One information systems manager who oversees some 200 VS machines said he attended the show to "get a sense of how [Wang] management is relating to [its] customers and to figure out for myself where the VS is headed."

He did not want to be identified, but he explained that he faces a crossroads: The 200 VS systems need upgrading, and he wants to know if he should invest further in Wang technology or turn to another vendor for Unix platforms. "A lot of people are like me — confused," he said.

The Lowell, Mass.-based company tried to allay such fears by previewing VS processors that are scheduled to be announced next month and early next year.

Wang plans to extend the high end with two VS 12000 systems that bracket the performance of today's VS 12000 Model 550. The midrange is due for a kicker in a few forms: a new processor in the VS 6000/Server, new pricing and op-

Wang, *page 60*

Highlights of Wang's new processors

- VS 12000 Models 450 and 650 minicomputers.
- Look for a March 1993 unveiling of the VS 9000, which combines VS 12000 memory capabilities and cabinet with the CPU of a VS 8000.
- VS 8000 includes two series: the 8400 with up to 64M bytes of capacity, and the 8200 aimed at smaller shops.
- VS 6000/Server designed to do duty as a minicomputer and an application server.

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Sybase System 10 answers user pleas

CONTINUED FROM PAGE 57

will support enterprise client/server applications as well as departmental solutions," said Hamel, who installed Sybase databases on Sun Microsystems, Inc. servers several years ago. High on Hamel's wish list is the System 10 Replication Server that can keep multiple Sybase database servers in sync.

Industry analysts said they believe Sybase's attention to IS concerns should help stem customer concerns about large-scale Sybase production systems.

"People want to be able to do production applications the way they have done them in the glasshouse for years," said Donald Feinberg, a senior software analyst at Gartner Group, Inc. in Stamford, Conn. "The piece that has been missing is systems management software for backup and recovery."

Many users cited the System 10 Replication Server as the single feature they most wanted to install when it becomes available.

The Replication Server is Sybase's answer to Oracle Corp.'s automatic two-phase commit scheme (see chart page 57).

Wang previews VS; unveils Unix

CONTINUED FROM PAGE 57

tions on the VS 8000 and a smaller cabinet for the VS 9000 to which users can field-upgrade from the VS 7000 or VS 8000 (see box page 57).

On the corporate side, reorganization plans at Chapter 11-protected Wang are taking shape, and it looks like the company wants to be a network integrator. LAN Management Services is a newly formed group that harnesses various local-area network support efforts under one roof.

The 30-worker unit, based in Atlanta, will not enjoy a stature in the company equal to Wang's imaging group, "but it'll be up there, just below imaging," said Dan Brown, a marketing representative.

The Technetron '92 conference was sponsored this year by both Wang and non-Wang groups, such as the Boston Computer Society and a local Banyan Systems, Inc. group.

Wang is one of the largest Banyan Vines resellers in the U.S., generating approximately $15 million worth of network operating system revenue for Banyan last year, according to Brown.

Plenty of pitches

VS users also heard migration pitches from Digital Equipment Corp., Hewlett-Packard Co. and Sun Microsystems, Inc., which outlined conversion and VS hardware trade-in programs to interested VS users.

Wang itself touted RS/6000 versions of the following key software products:

- **Open/Pace.** Wang originally showed the database/development tool more than a year ago running on SCO Unix from The Santa Cruz Operation but shelved that version after signing a contract to support IBM's Unix line in June 1991. Wang then declared that an IBM AIX edition was on the way, finally making good on that promise earlier this month.
- **Open/Office 1.0.** Office is Wang's VS-based electronic-mail package. It was built to run in client/server mode, with an RS/6000 as a server and PCs using Microsoft Corp.'s Windows as clients. The product adheres to the X.400 and X.500 standards of the Consultative Committee for International Telegraphy and Telephony, according to Wang.

Also unveiled was Cobol Resource, a tool kit for downsizing Cobol applications, such as software written in the VS' ANSI Cobol 85, to run on AIX-based platforms.

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DEC fortune needs Alpha and more

By Melinda-Carol Ballou

Digital Equipment Corp.'s long-awaited release of Alpha AXP platforms earlier this month was welcomed by analysts and users, setting what some described as a "new tone" for the company.

The products are an important step, but Chief Executive Officer Robert Palmer and analysts agreed that Alpha alone will not move DEC out of its financial slump; the company's survival strategy must also focus on a more efficient organization and on new markets, such as systems integration and services.

As an indication of its focus on services, DEC supplemented the unveiling of Alpha AXP platforms with announcements on migration and services for Alpha and business practices geared toward easing the move to the new platforms [CW, Nov. 9].

The new Alpha AXP Services include Application Re-engineering and Migration Services; Learning Services for doing design work for Alpha AXP; Vendor/Developer Support Services; Consulting Services with DECstart packages for Open VMS and DEC OSF/1 with system installation, training and technical consulting; DECathena for DEC OSF/1 Version 1.2; and Hardware/Software System Services or traditional DEC support services for Alpha.

DEC also clarified upgrade paths and pricing for making the migration from specific VAX models to Alpha AXP. New upgrade pricing of $99 per SPECmark is in line with Alpha-ready pricing made available earlier this year.

Analyst reaction

Analysts spoke approvingly of the new systems and service — for the most part.

"The pricing on a performance basis for the new systems is extremely low, but there are a lot of missing pieces right now," said Ted Krum, research analyst at D. H. Brown & Associates, a market research firm based in Port Chester, N.Y. He added that critical software and applications will not be ready for another year or 18 months, especially for commercial customers with clustering volumes.

"Without the actual applications, they are going to be in a tough situation; for existing customers, they can push the Alpha-ready solutions and say that they will migrate them over later," said Steve Widen, senior analyst at WorkGroup Technologies, Inc., a market research firm based in Hampton, N.H. "But new customers aren't going to opt for one architecture today and move in the future. The window of opportunity is closing for DEC."

HP sweetens object licensing

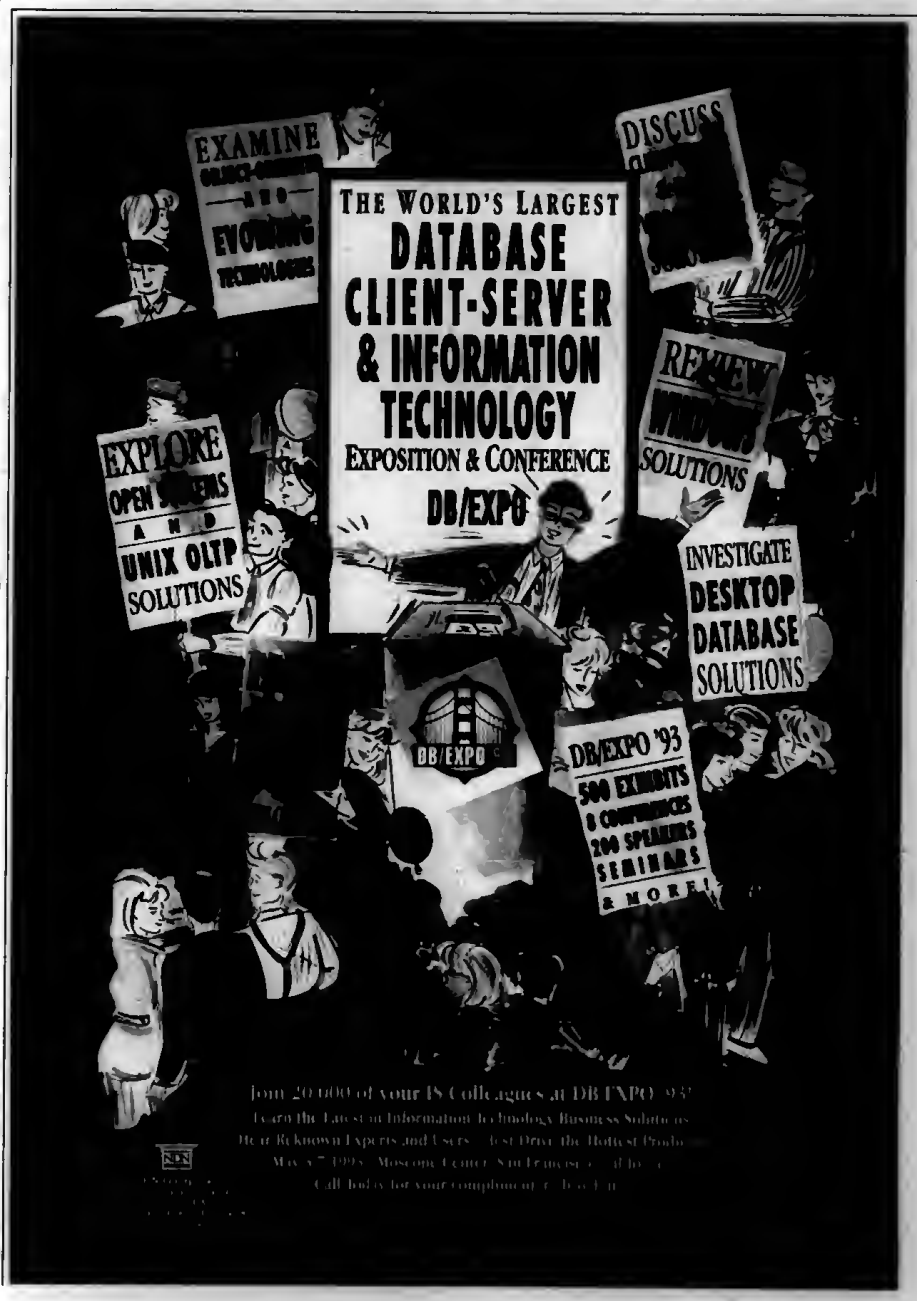
By Mark Halper
PALO ALTO, CALIF

Hewlett-Packard Co. this week plans to give a little lift to its object-oriented database marketing program, adding inducements primarily for its Unix machines.

The company will disclose new packaging that enables users to evaluate OpenODB before committing to a full purchase and increases the number of users supported by a license from eight to 64. The user expansion applies to HP's Unix servers and workstations and its MPE line of multiuser systems; the other purchasing incentives apply only to the Unix line.

An HP spokesman said HP emphasized Unix platforms because they are typically used for development of both MPE and Unix applications and because an MPE user can get evaluation benefits from examining OpenODB on a Unix machine. The user expansion applies to deployment and development, which is why HP is easing licensing policies for MPE and Unix.

An evaluator's bundle of OpenODB costs $5,000 and includes a three-month license for up to 64 users. A learning version costs $10,000 and includes a one-user license for an unlimited time period.



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Redevelopment takes root

Pilot effort frees up Arizona State University programmers

By Garry Ray
TEMPE, ARIZ

■ About a year ago, Arizona State University (ASU) was in the same position as many of its 43,000 students. The university's 55 application programmers spent much of their time poring through tomes of dusty Cobol code to learn how the school's systems functioned. There was little time to add new features or to satisfy maintenance requests.

The problems did not end there. With a thin budget for 1992, the programming staff could not be expanded, although it was stretched to the limit maintaining 35 applications serving more than one quarter of the university's 5,000 employees. Locked away with reams of Cobol code, the data processing department had to shunt to the back burner most new maintenance requests.

The situation was becoming desperate. "We knew that if the trend in maintenance demands continued, and if resources stayed flat, there would be no resources to add new functionality to the applications," said Darrel Huish, assistant director of computer information systems at the university. "We'd be doing nothing more than keeping existing systems alive, and maybe not too adequately."

But a pilot re-development effort started last spring has given the university its second wind. Employing tools from Viasoft, Inc., a Phoenix software re-development firm, and from IBM, ASU has launched a new maintenance methodology that Huish said it expects to have fully in place "within four or five months."

Somewhat different than re-engineering, re-development is intended to make maintenance easier. "Re-development modularizes existing code to make it more efficient without changing functions. Re-engineering is actually changing the functions," said Doug Griffin, manager of IBM's application development consulting practice in Phoenix. During the ASU effort, Griffin's consulting group took the role of "project management, including coordination of tools and trying to make sure we met the objectives [ASU] outlined," he said.

Surprisingly, ASU's initial objectives were turned to longer term goals as the project took shape. With its pressing maintenance problems, the university initially wanted to examine and re-develop its largest and most important applications from the onset. "They wanted to re-engineer live programs that they could put right into production," said Steve Tesinsky, manager of consulting practices at Viasoft. However, it quickly became apparent that smaller pilot projects, along with staffwide training, would better fit the university's long-term objectives.

"They said the emphasis should be on learning how to do [re-development], not to cut corners," Huish reflected. "They were right."

Still, the pilot project provided immediate proof that there would be a significant payback from re-development. One of the two pilot projects involved a campuswide directory of student information, Huish said. Over the years, security rights and access codes had become embedded in various parts of the application. "It was really a tangled mess," Huish said. "When we got [maintenance] requests, we would say, 'It's more trouble than it's worth.'"

During the pilot, users requested a change to the system. Working with the code from the pilot program, "making a change went from 40 hours of work down to six hours," Huish said.

With the pilot phase now complete, Huish said he plans to have 10 programmers use Viasoft's Renaissance, which decomposes Cobol programs into functional components. The rest of the staff has been trained in the new re-development and maintenance methodology.

Although the project has spanned more than six months and has required training and software acquisitions, Huish said it has been an eminent success. "We feel we've gotten about a 20% productivity gain. It's like getting six new programmers."

ON SITE

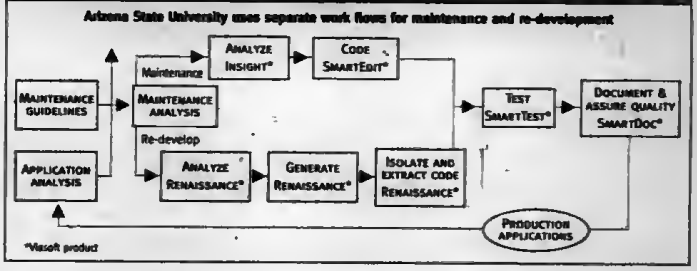
Arizona State University
Tempe, Ariz.

Challenge: To reduce the maintenance load burdening 55 programmers supporting 35 administrative applications

Technology: Cobol redevelopment methodologies and tools from Viasoft and IBM.

Result: An estimated 20% gain in productivity.

Arizona State University uses separate work flows for maintenance and re-development



On Site

Petroleum firm relies on CASE

By Paul Gillin
WALTHAM, MASS

When your business grows a thousandfold in 20 years, you do not have much time to mess around with Cobol.

That is why Global Petroleum Corp. has made a major commitment to computer-aided software engineering (CASE) tools and high-level languages. Global, a closely held energy distributor, has grown from a $3 million regional company in 1973 to a $3 billion giant today. Yet Global has an information systems staff of only four people.

The secret? Use productivity tools, contract out for expertise and do not reinvent the wheel. "We automate the stuff that ought to be automated," said data processing director Jim Shelton, who noted that Global went to a virtual lights-out data center 10 years ago. "And," he said, "we're good."

Global Petroleum's *Jim Shelton and Martha Thayer*

Global employs its staff sparingly. The data center manager who supports a Unisys Corp. A6 mainframe and Micro A workstation also supports the 80 local-area network users at headquarters. There are just two programmers, and Shelton doubles as database administrator and occasional programmer.

Key to Global's productivity is a commitment to buying what it can and developing new systems entirely in high-level languages. One of its bread-and-butter applications — an inventory system that gets the bulk of new development work — was built in Unisys' Linc fourth-generation language (4GL). The system runs more than 150 reports and 100 screens and accesses two external databases for real-time reporting.

Accounts payable and general ledger packages

Petroleum, *page 64*

Intersolv unveils upgrades

By Garry Ray

The downward push to PC-based development platforms was in evidence at a recent user conference held by Intersolv, Inc.

The Rockville, Md., company, which sells development, re-engineering and version-control products, continued its emphasis on PC-based platforms with the unveiling of the following products:

- **PVCS Reporter 1.0**, a report writer that extracts and presents information stored in the PVCS version-control repository. The program, which is now available for Microsoft Corp.'s Windows and OS/2, is priced at $200.
- **Excelerator II 1.1 for OS/2**, an analysis and design tool that company officials said will now support client/server application development. New features include event-driven application modeling and an integrated graphical user interface design tool. The new version of Excelerator is planned for release this month.
- **Design Recovery for Windows 1.0** is a redevelopment tool for use with Cobol applications. First released as an MS-DOS product this year, the upgraded tool captures and stores design specifications from Cobol code. Specifications can be transferred to the company's Excelerator for subsequent analysis and design. Design Recovery 1.0 is available now for $6,500.

On the business front, Intersolv announced that PVCS will be delivered for Microsoft's Windows NT simultaneously with the release of the operating system next year. Intersolv officials said other development tools will be ported to Windows NT.

Petroleum firm relies on CASE

CONTINUED FROM PAGE 63

were purchased from Lawson Associates. Global's only major homegrown Cobol application is a 20-year-old accounts receivable system that is maintained using an ad-hoc report writer called EZSpec from Software Clearing House, Inc. in Cincinnati. The product provides a checkoff approach for specifying data fields, criteria and sort orders. "I can probably do in five minutes using EZSpec what used to take two to three hours in Cobol," said Martha Thayer, Global's manager of technical support. "If it's not what I want, I can easily change it and generate the report again."

Under its best-of-breed philosophy, the IS department also chose Progress Software Corp.'s Progress 4GL in 1990 to build a Unisys CTOS application for its traders. As the size of the application grew, Global migrated it to Unix, a conversion made easier by Progress' portability.

For most of Global's projects, the tools of choice are Line and the Line Systems Approach, a methodology designed around the Line tool set. "We looked at several alternatives to Unisys but found that the other CASE tools aren't as well integrated," Shelton said.

Global's processing load is not very transaction-oriented, but it involves a steady stream of report requests from users. Using a joint application development approach and the Line tool set, the department's two programmers can turn around most reports in a day or two, Shelton said. IS staff members can produce mock-up reports using Line screen painters to give users a quick preview of the applications they request.

The Unisys environment is particularly well-adapted to quick change artistry, Shelton explained. "Except for the largest shops, I don't know any Unisys users who have database administrators," he said.

For example, Shelton handled a recent change request that required adding several database fields and application screens by dialing in from home and making the change over the weekend. When the company expanded a product code from three to four digits last year, the staff first ran an impact report to identify the more than 80 reports and 50 screens that would have to change and then made all the changes in 10 days.

Shelton estimated that the process would have taken six weeks or more using conventional programming.

Brushing aside concerns about 4GL performance ("A fast solution that's late doesn't buy you anything"), Shelton said the real benefit of software productivity tools is in their impact on the business.

"Our primary focus is to make the application do what it's supposed to do," he said. "The Line system generates code as efficiently as an average programmer. Maybe I could write code more efficiently, but I couldn't do it anywhere as quickly."

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Challenge: To keep pace with information demands of a $3 billion company while maintaining an IS staff of only four people.

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➤*Shared Financial Systems*
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15301 Dallas Pkwy.
Dallas, Texas 75248
(214) 233-8356

Softool Corp. has introduced a new version of CCC/Manager for the IBM RISC System/6000.

According to the company, the tracking version of any type of component such as object, source, computer-aided software engineering, graphics or executable is automated and designed to give faster access to applications through a graphical user interface or a Unix command line.

For complete reporting, the product merges concurrent versions of applications and components. For application management, CCC/Manager enables users to optimize productivity by comparing, isolating and securing multiple versions of an application system.

CCC/Manager costs $3,200 per user.

➤*Softool*
340 S. Kellogg Ave.
Goleta, Calif. 93117
(805) 683-5777

Advanced Software Automation, Inc. has released Hindsight-Fortran.

According to the company, Hindsight-Fortran is a fully integrated software maintenance, testing and re-engineering environment. The product parses Fortran source code and has the capability to decompose system structure. Hindsight-Fortran produces a detailed look at a representation of the common and local data, a static structure of the software system and connections to the dynamically collected runtime data. Currently, Hindsight-Fortran is available for Sun Microsystems, Inc. Unix workstations running the Open Software Foundation's Motif.

A single floating license costs $8,450.

➤*Advanced Software Automation*
3130A Coronado Drive
Santa Clara, Calif. 95054
(408) 492-1668

GE Advanced Concepts Center has announced the OMTool, an interactive data modeling tool.

Users working within a PC environment can develop a graphical model of an application that can be easily edited, allowing the user to focus more on analysis and design, the company reported. For object-oriented languages, the product automates the process of preparing an application model, adding implementation details, updating it and producing program skeletons and data structures.

OMTool will cost $695 throughout 1992. The price in 1993 will be $995.

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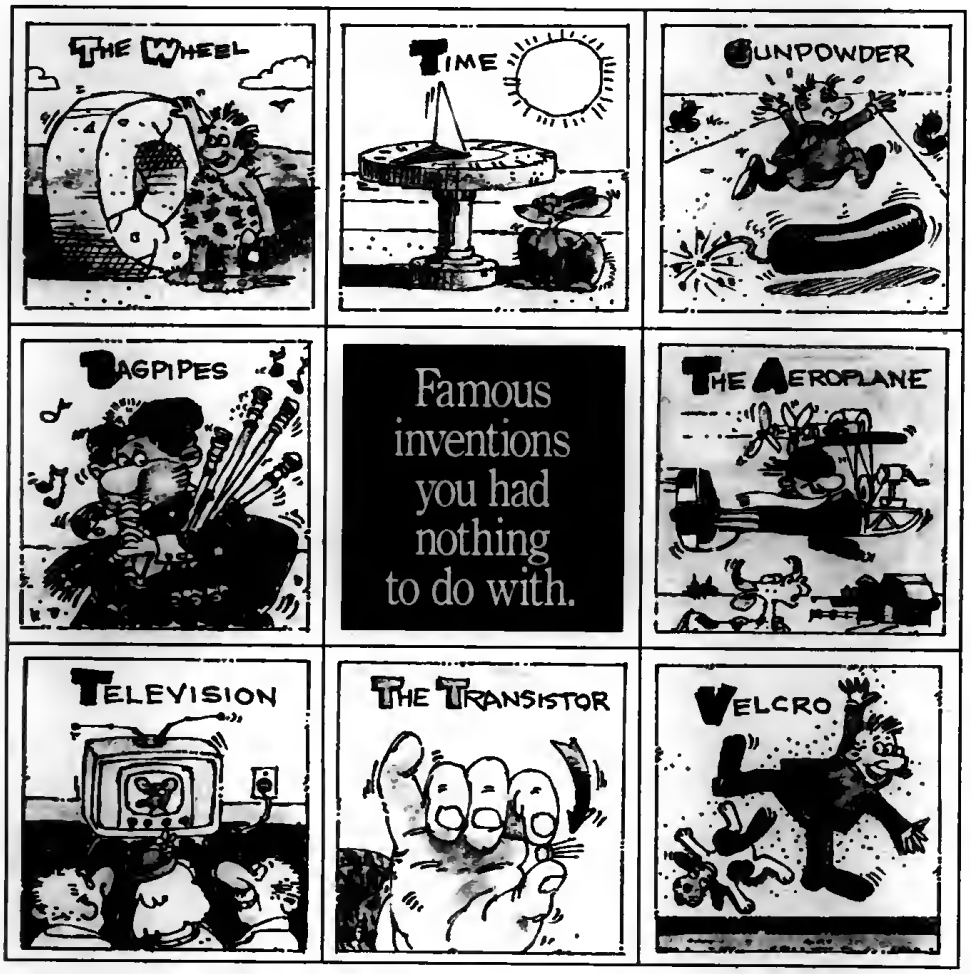

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Pacific Bell wants to know . . .

"WHO'S CALLING, PLEASE?"

No longer able to say 'what the hell' to more than 1.5 million unbillable calls a month, the nation's largest local phone company is calling on a new expert system to recoup lost cash.

Pacific Bell's Eric Firdman *says bringing in an outside vendor as an integrator helped foster cooperation with user departments*

By Willie Schatz

Contrary to popular Orwellian belief, the telephone company doesn't know everything about who calls whom. In California, the country's largest local system, Pacific Bell, processes 1.88 billion calls — yes, you read it right — per month.

Yet even though the San Francisco-based utility uses the most advanced technologies available to stuff every possible penny into Pacific Bell coffers, some 3.9 million calls cannot be routinely charged each month. Chief among the two dozen or so reasons? Many callers — from teenage phone hackers to drug dealers and organized crime figures — simply cannot be located or identified.

Not that Pacific Bell, a division of Pacific Telesis Group, doesn't try: Labor-intensive manual searching by 120 company investigators identifies roughly 2.4 million calls per month. But that still leaves 1.5 million calls unbilled. At this point, Pacific Bell simply writes off the calls and swallows losses, totaling more than $4 million a year.

"In the previous monopoly environment, we could have continued to write off the calls and said, 'What the hell, we'll just increase rates,'" explains Eric Firdman, Pacific Bell's executive director of strategic information systems. "But we can't do that now."

There's another motive, notes Tom Nolle, president of CIMI Corp., a telecommunications consultancy in Voorhees, N.J.

> The old manual system certainly had room to improve.

"One-and-a-half million unbilled calls are not necessarily going to hurt them," Nolle says. "But, if you have a hole big enough to stuff that many calls through, you run the risk of being known as a patsy. It's more of a proactive stance."

With big monthly losses ringing in their ears, Firdman and other Pacific Bell executives set about creating a re-engineering plan to capture some of the lost revenue. By next April, when a new knowledge-based billing system is slated to go on-line, they're hoping to hear the clink of lost coins in corporate cash registers once again.

The new $800,000 on-line system will pursue freeloading callers with two Hewlett-Packard Co. 9000 servers running ART-IM, an Automated Reasoning Tool from Inference Corp., over Unix workstations. Collectors will use the system to access billing data now residing on three mainframe legacy systems.

When fully operational, the "Expert Message Correction System" is expected to resolve 328,000 (about 22%) of the monthly write-offs. While Firdman concedes the system won't solve the problem entirely, he says it will help Pacific Bell's bottom line and improve worker efficiency and morale.

"The phone business, especially in the regional Bell operating companies, is becoming more market-oriented and more competitive," Firdman explains. "We've got to look at all possible sources of saving money and generating revenue. This isn't funny money. It's just waiting around to be collected."

Economy forced the issue

Pacific Bell's effort is a good example of how tougher economic conditions have forced a once-complacent firm to leap into process automation and re-engineering.

Over the past year, Pacific Bell has cut 4,300 jobs, part of an effort to trim 11,000 positions by 1994. Last month, plans were announced to cut 600 man-

Pacific Bell, *page 73*

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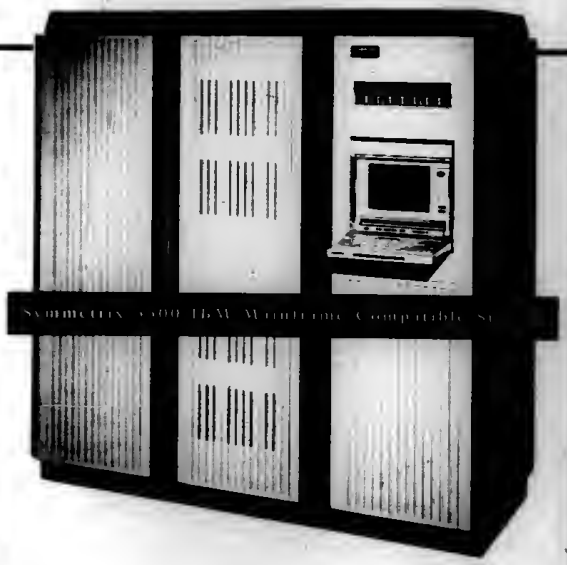

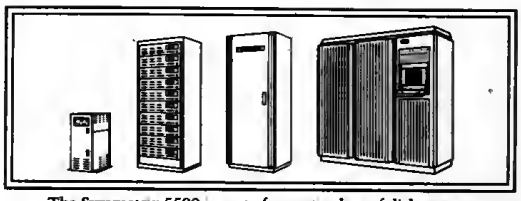

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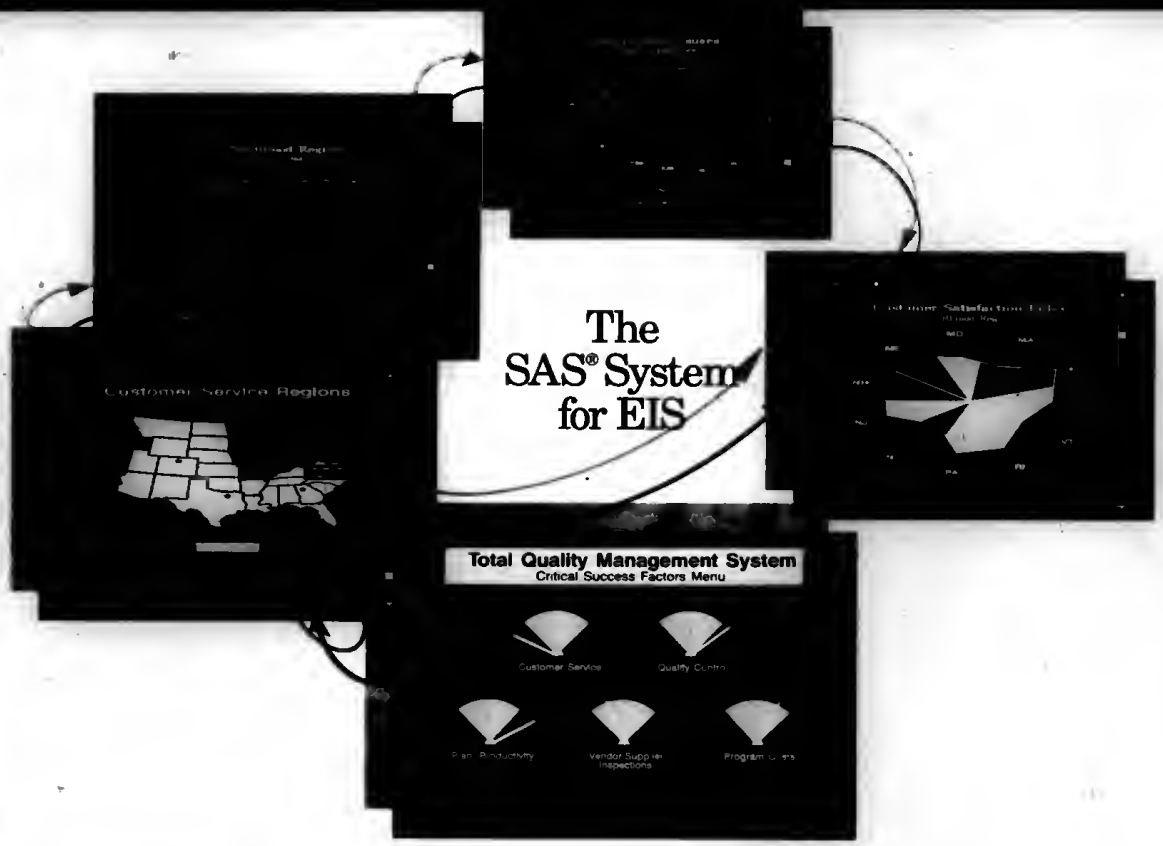

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"Who's calling, please?"

CONTINUED FROM PAGE 69

agement jobs by year's end.

The company is also starting to pay $56 million in refunds to customers as ordered by the California Public Utilities Commission, which charged that Pacific Bell improperly made customers pay for research into new technology, such as electronic messaging and voice mail.

And two months ago, Pacific Telesis announced that it is exploring spinning off its three telephone companies, including Pacific Bell, to focus on more profitable ventures, including cellular, cable television, paging and overseas systems. Pacific Bell's third-quarter revenue rose slightly to $2.51 billion. So at this stage, every penny clearly counts.

The old manual "unbillables" system certainly had room for improvement. When management asked Firdman to examine the process, a "quick and dirty" study process revealed investigators were maximizing their time by chasing big-bill rogues, leaving smaller calls untouched. But, as Firdman notes, small calls can nickel-and-dime a company to distraction. "They may be small peanuts individually, but they represent a lot of money."

Initially, Firdman had to make the tough choice of whether to use an outside expert system vendor or give the work to the internal IS staff. Given the scope of Pacific Bell's problem, it soon became clear that outside expertise and manpower were required, Firdman says.

One result of using an outside integrator and subcontractor, Firdman says, was the low level of disagreement between IS and business. "We became the intermediary and the technical liaison between the business side and the end users," Firdman says.

Another small company was hired to provide an interface between Pacific Bell's legacy systems and any new knowledge-based ones.

Steve Lindstrom

Eric Firdman *set up the bridge between business and end users*

Let go of the past

While the system is fairly straightforward to install, Firdman initially was concerned about resistance to the new methods by front-line staff or business units.

He says cooperation has been surprisingly good, however. "I'm amazed that there's been absolutely no conflict between IS and business. There are other projects going on in Pacific Bell that I can't say that about. We've been on the same wavelength since the beginning."

Firdman attributes this unusual cooperation to a widespread understanding that the expert system will reduce paperwork, boost collections and generally make everyone look and perform better.

"There's been a strong psychological boost," he says, "because everyone knows that the faster we implement it, the more money we save."

To make sure the system would be accepted, Firdman decided to position the IS department as a liaison between the end users and the integrators from Inference.

His reasoning: "When a systems integrator comes in and tries to work with the end users and with the business people, it never works. The systems integrators don't speak the same language, and there's no communication between the two sides. But as the managers, we can speak both languages."

Although a good six months of work remains before the project is completed, Firdman predicts things will continue to go smoothly because the most potentially rocky political parts of the project are now behind.

"Employees are really convinced the system's going to help them," he says. "And we don't anticipate any layoffs. That's why I'm convinced this project is going to work."

Schatz is president of the Schatz Group in Washington, D.C.

Update: Intelligent systems

During the past decade, artificial intelligence has been born, slain and resurrected almost as many times as Dracula.

Little wonder the average IS manager can still barely supress a yawn or skeptical wink ("Right. . . .") when the topic of AI comes up.

"The whole idea of expert in a box has not been popular, even though it has saved millions and millions," observes Neena Buck, a vice president at New Science Associates, Inc., a Westport, Conn., consultancy.

A poor economy, programmer resistance, weak internal marketing and elitist and unproductive AI groups haven't helped matters, either, she adds. But AI use appears to be changing.

Re-engineering and business process automation has rekindled interest in knowledge-based systems as smart pieces of larger systems. Whirlpool Corp., American Express Co., General Motors Corp., American Airlines and others showed off money-saving applications at this summer's American Association for Artifical Intelligence conference in San Jose, Calif.

At some companies, AI groups are teaming up with development teams using object-oriented technologies. This mirrors an industry trend in which big AI vendors such as Neuron Data, Inference and IBM are recasting themselves as general-purpose development software vendors.

Two AI pioneers, AI Corp. and Aion Corp., for example, recently merged under the new name Trinzic and industry observers say a new partnership between computer-aided software engineering guru James Martin and AI vendor Intellicorp represents the wave of the future.

Such ventures are expected to begin producing libraries that will let end users develop applications atop object-oriented programming systems.

Still, big obstacles remain, including political battles with user groups (which now buy many AI packages), battles between AI and computer-aided software engineering groups and plain old management apathy.

Buck concludes: "The biggest problem with AI remains not the tools but the systematic transfer of technology into the organization." *—Joseph Maglitta*

Dun & Bradstreet pushes the positive

Not every rollout of a knowledge-based system — darned few in fact — go as smoothly and seemingly without political problems as Pacific Bell's.

Seasoned companies honest enough to share their hair-pulling experiences implementing knowledge-based systems will attest to that. Consider the experience of the Credit Clearing House of Dun & Bradstreet Corp.'s Business Information Group in Morristown, N.J.

Like Pacific Bell, Credit Clearing House used Inference Corp.'s ART-IM tool to tackle what Roger Jambor, an assistant vice president at D&B, terms "a number of significant business problems."

Credit Clearing House assigned credit ratings and dollar-specific recommendations to the apparel industry's retail customers. Demand for credit information swelled to more than 125,000 businesses, and the suppliers of answers were overwhelmed.

"If a customer called in and his case needed updating, that could take as long as three weeks," Jambor explains. "If a customer requested information on a particular prospect and we couldn't find it or we couldn't retrieve it fast enough, that meant a lost sale."

Little wonder that in such conditions the average analyst burned out in about 18 months. Pressure also grew because the retail companies were developing their own information, which posed a growing source of competition.

Smart sources

American Association for Artificial Intelligence
Menlo Park, Calif.
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Association for Computing Machinery
Special interest group on AI
New York, N.Y.
(212) 869-7440

Ablex Publishing Corp.
Catalog of titles and serials on AI
Norwood, N.J.
(201) 767-6717

Turning to outsourcers

Unable to cope with the situation internally, Jambor, whose job includes identifying, evaluating and introducing new technology to the business information group, went outside.

Credit Clearing House's predicament seemed ideally suited for an expert system: a well-bounded problem that, if the new technology failed, would not negatively affect the business.

In January 1988, Credit Clearing House began building a prototype of a credit reporting system; a production version was installed 18 months later. The system was developed on a PC using ART-IM/MS-DOS and ported to two MicroVAX 3100s. These act as coprocessors to an IBM 3090 mainframe running under CICS with database access through CA-IDMS. That was the easy part, Jambor says.

How could anyone argue with a reporting system that cut information search times from three weeks to five seconds and paid for itself in less than a year instead of the 30 months predicted? Easy, Jambor says.

> It's a natural human tendency to be concerned, Jambor says.

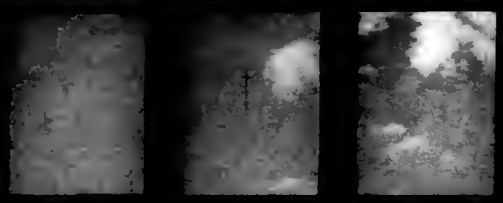
From the start, analyst users disliked the idea of a computer's invading even a small piece of their territory, Jambor recalls. "You could tell they were concerned because they'd say so in the meetings we had to discuss the new system," he says. "It's a natural human tendency to be concerned."

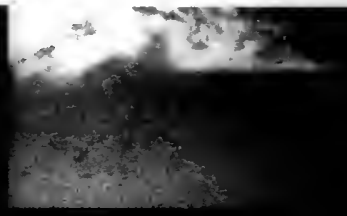
Convincing skeptics was hardly easy, but Jambor emphasized several key points: The system would help staff focus on more complex cases, work more efficiently and reduce paperwork. "Management assured them it wasn't going to throw people out the window. We stressed the positive from the beginning." The approach worked.

"It took six months before the analysts really believed the system was working and another six months before they reached the enthusiastic level," Jambor says. "But now it's clear that the business side and the technical side have gotten more from the system than each expected."

—Wilfie Schatz

Open systems.





Everyone agrees they're

The idea of open systems—that computers should easily share things and basically behave like friends—is what everybody is aiming for.

Still, you hear lots of definitions for open systems, from many points of view. So, on the subject of openness, IBM remains open.

Instead of insisting that one operating system, like UNIX,* is more open than another, we're for anything that gets your existing and future systems working together. So to us, each customer's open system will be different, and unless your pockets are incredibly deep, you'll begin with the systems you already have.

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good, but not always from the same point of view.

An ideal open system begins with a plan tailored for your business needs, and IBM can help you with it, probably better than anyone. Our stake in open systems goes far beyond hardware, operating systems and all the standards we support. It includes the *services* you'll need to make everything work.

Call us and we'll listen to your business needs first, then we'll get into computer solutions, present and future. After that, we'll build a plan for opening things up, and of course we'll work with other vendors—that's what open systems are about.

At Republic National Bank of New York, for example, we built an open system that's improving customer service. Based on the IBM RISC System/6000,™ it works in close partnership with their DEC,® Tandem® and IBM mainframes, on a network that includes both TCP/IP and SNA protocols. And along with IBM banking software (customized by one of our Business Partners), it runs a wide variety of off-the-shelf UNIX applications. And we not only helped integrate the whole system, we provide ongoing service.

We're open to helping you, too. To learn more, call us at 1 800 IBM 6676, ext. 730.

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It's Big Blue or you

Entrepreneurship and IBM top IS work favorites

By Neil Margolis

Which organization would you most like to work for? Young and old, male and female, staff and line agree. My own company or Thomas Watson's.

A recent *Computerworld* survey asked some 1,400 information systems professionals what topped their workplace wish lists. Surprisingly, respondents whizzed past such highly acclaimed corporations as Ben & Jerry's Homemade, Inc., Levi Strauss & Co., Federal Express Corp. and General Electric Co.

Some passed at the likes of 3M Corp., AT&T, Novell, Inc., Apple Computer, Inc. and Electronic Data Systems Corp. and gave a more striking sainte to the U.S. government, NASA and Microsoft Corp. But the clear winners were "my own company" and IBM — with 34% of the vote.

That's how the grass looks from across the fence. But how do the entrepreneurial alternative and IBM stack up as viewed from *inside?*

John Kohler: *Entrepreneurship 'not fun'*

Sweet and sour

"I wouldn't do it again for anything in the world," John Kohler said of his stint as an entrepreneur. Between a partnership at Chicago-based systems integration player Andersen Consulting and six years heading up IS operations at Dallas-based paper products giant Kimberly-Clark Corp., Kohler founded and headed his own IS management consulting firm. Being the chief executive officer was great, he says, but being the chief financial officer was something else. "What made an old man out of me — and quickly — was trying to balance the checkbook and meet the payroll," he says.

Even when the details of running the business left him time for the customer-oriented activities he craved, "I was constantly torn between selling the work and doing the work," says Kohler, who left Kimberly-Clark to become a partner at Chicago-based systems integration firm Technology Solutions Corp. "Entrepreneurship looks good from the outside, but it's just not *fun*, you don't get to do the things you went into it for."

That is news to Larry Phipps, now head of his own IS marketing and consulting firm after a 25-year career in media relations at the survey respondents' other top choice, IBM.

"I'm very tired, I'm very stressed, but I've never enjoyed anything so much in my life," said Phipps, a second-generation entrepreneur who acknowledges that following in his dad's footsteps gives his current career an extra layer of satisfaction.

But learning to be a part-time CFO — or earning enough to hire one — is a worthwhile trade-off for having your hand on the reins when it comes to business strategy and customer relations, he said.

Among Phipps' new clients is his old employer, a firm that Phipps said was a good place to work. "It still is, from everything I hear," said Phipps, who is in close touch with a raft of former colleagues throughout IBM, including those in IS.

Ironically, he said, these days life at IBM — whose reputation for corporate security and solidity zoomed straight past legend and into cliche during the past several decades — is sometimes hard to distinguish from life at a start-up.

"You'll hear different answers from different people if you ask them what it's like to work at IBM right now, but you'll find general agreement that, 'Boy, has it changed! This ain't the company I signed on with,' " he noted. "And that's not totally a negative. . . . A lot of people are excited by the change."

True Blue

Meanwhile, many on the outside look beyond the Big Blue/New Blue distinction. What they see is True Blue, said Jacqueline Bynsdorp, PC coordinator at Jockey International, Inc.

"IBM is a corporate standard," said Bynsdorp — and that goes for the company as well as its products.

"Why would I want to work there? Because they're stable," Bynsdorp said, noting that her own Kenosha, Wis.-based firm is happily bypassing the headaches of heterogeneous computing by standardizing on the IBM Application System/400.

"Through all their alliances, [IBM] is constantly in touch with the latest technological advancements, whether they're acting on them at any given moment or not."

Calendar

DEC. 6 - DEC. 12

Supporting and Troubleshooting Windows 3.1 Seminar. Seattle, Dec. 7-8 — Contact: Data-Tech Institute, Clifton, N.J. (201) 478-5400.

Wireless Datacom '92 Exposition and Conference. Boston, Dec. 7-9 — Contact: Communication Events, Norwalk, Conn. (203) 847-5131.

Computer Measurement Group (CMG) '92. Reno, Nev., Dec. 7-11 — Contact: CMG '92, Department 77-5105, Chicago, Ill. (312) 527-6652.

Image World Atlanta. Atlanta, Dec. 7-11 — Contact: Benita Roumanis, Knowledge Industry Publications, Inc., White Plains, N.Y. (914) 328-9157.

The 1992 Federal Computer Conference. Washington, D.C., Dec. 8-10 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500

The Auditing LANs Symposium. Chicago, Dec. 8-10 — Contact: Pam Bissett, MIS Training Institute, Framingham, Mass. (508) 879-7999.

Database World Conference and Exposition. Chicago, Dec. 8-10 —Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880

The New York Technology Summit Conference and Exhibition. Jacob Javits Center, New York, Dec. 8-11 — Contact: American Exposition, Inc., New York, N.Y. (212) 226-4141.

Process for Using Quantitative Data to Manage Information Technology Projects and Activities. Orlando, Fla., Dec. 10-11 — Contact: Quality Assurance Institute, Orlando, Fla. (407) 363-1111.

DEC. 13 - DEC. 19

The Fourth Annual Baltimore Computer Conference and Exposition. Baltimore, Dec. 15-17 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

JAN. 3 - JAN. 9

ShowBiz Expo East. New York, Jan. 7-9 — Contact: Live Time, Inc., Los Angeles, Calif. (213) 668-1811.

JAN. 10 - JAN. 16

Software User Documentation: Designing for Usability. Orlando, Fla., Jan. 11-12 — Contact: Digital Equipment Corp., Marlboro, Mass. (508) 467-6910.

Electric West '93. San Diego, Jan. 12-14 — Contact: The Fairfield Factor, Inc., Brookfield, Conn. (203) 775-0422.

JAN. 17 - JAN. 23

The Canadian Software Re-engineering and Maintenance Conference. Toronto, Jan. 19-21 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3870

Outsourcing Conference '93. Dallas, Jan. 22-23 — Contact: Frost & Sullivan International, New York, N.Y. (212) 233-1080.

JAN. 31 - FEB. 6

Downsizing Corporate Information Systems Conference. London, Feb. 1-2 — Contact: Amanda Stuart, IBC Technical Services Ltd. London. 011-071-637-4383.

Object World. Boston, Feb. 1-4 — Contact: Lynn Fullerton, World Expo Corp., Framingham, Mass. (508) 879-6700.

Comnet. Washington, D.C., Feb. 2-4 — Contact: World Expo Corp., Framingham, Mass. (508) 879-6700

FEB. 7 - FEB. 13

1993 UDMS User Conference. Keystone, Colo., Feb. 7-10 — Contact: Rebecca Campbell, Interactive Software, Denver, Colo. (303) 987-1001.

Executive Track

Mark Wiesenberg is the new head of the Computing and Communications division of **Brookhaven National Laboratory**. Wiesenberg comes to the Upton, N.Y.-based telecommunications research organization from two decades of data processing and management at Long Island, N.Y.-based AIL Systems, Inc. He will head an 86-person staff that provides technological support to the lab's scientific researchers.

Palatine, Ill.-based **William Rainey Harper College** has a newly created position — vice president of information systems — and a new executive to fill it: **David J. McShane**. Formerly the dean of IS at Livonia, Mich.-based **Schoolcraft College**, he will head up a technology acquisition initiative at Harper as well as a drive to incorporate the acquired technology into the college's academic and administrative endeavors.

David Altman has been promoted to senior programmer analyst for corporate MIS at spice and specialty foods giant **McCormick & Co.**, based in Sparks, Md. Altman came to McCormick and to the U.S. in 1991 from Moldava, USSR, where he served as a programmer/analyst at the Computer Center for the Ministry of Health. In his new post, he will head the design and programming of a contract management system for McCormick as well as system development and support functions for the firm's sales and marketing applications.

John G. Foy Jr., former vice president and director of a management consulting organization at Cincinnati Bell Information Systems, is the new vice president in charge of the management consulting practice at **Consulting Research Associates (CRA)**. In addition to offering consulting in a range of management areas, Bloomfield Hills, Mich.-based CRA represents outsourcing vendor The Genix Group.

Moving on up

Have you or a colleague in the information systems field recently been promoted? *Computerworld* would like to tell the rest of the IS community. Contact Associate Editor Carol Hildebrand at (800) 343-6474 to pass the news.

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80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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22. Dir./Mgr. Tech. Planning, Adm. Svcs., Data Comm., Network Sys. Mgt., LAN Mgt., PC Mgr.
23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Mgt.
60. Sys. Integrators/ VARs/Consulting Mgt.

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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
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70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Educator, Journalists, Librarians, Students
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65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/Refining/Agric.
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. System Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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Integration Strategies: Specialists

Little firms, big benefits

By Alan Radding

■ Hiring a small systems integrator can be like seeing a small-town doctor: It's probably better at patching up small cuts and bruises than attempting major surgery.

But that's also a big attraction, according to information systems managers who have opted to work with smaller integrators. Plus, they add, smaller companies appear more eager to please — and less likely to present a hefty bill at the end of a project.

"If you need a Band-Aid, don't set yourself up for major surgery," says Karen Phillips, a network engineer and project manager at a major federal agency based in Washington, D.C.

Phillips says that smaller players work well for less comprehensive jobs, enabling her to save her resources for the big projects that require an integration heavyweight.

That's why she turned to ISYX LAN Systems, Inc., in Rockville, Md., to install and tie together about half a dozen departmental local-area networks in the Washington, D.C., metropolitan area. With experience in Novell, Inc., Tricord Systems, Inc.'s superservers and X.400 electronic-mail systems, ISYX was qualified to handle the specialized network integration job, she says.

For others, the wallet plays a big part in the decision. Curtis Meltzer, director of information services at Chadbourne & Parke, a New York law

firm, says specialized firms usually cost less and respond faster — and are more appreciative of smaller projects.

Meltzer recently hired New York-based LAN Systems, Inc., a small integrator specializing in networking, to handle the installation and integration of a 600-node LAN, tying together the law firm's Microsoft Corp. Windows-based PCs and Apple Computer, Inc. Macintoshes.

"Our project probably equals 10% of their annual income," he says. "If it went to EDS with a project this size, they'd tell me to get in line."

Hal Neumann, senior process control engineer at SMS Concast, Inc. in Montvale, N.J., also likes being the big fish in a smaller pond.

The company turned to a small group of integrators, particularly the Computer Task Group (CTG) in Buffalo, N.Y., to provide the software development and integration of custom control equipment for the steel industry. "One reason we like CTG is they bend over backward to give us what we ask for. The big guys are more likely to tell us to take a hike," Neumann says.

Specialized knowledge and familiarity with the particular project is what attracted Boston-based John Hancock Mutual Life Insurance Co. to Fusion Systems Group, an integrator located in Boston specializing in expert systems. John Hancock was using an expert system with a shell from a vendor that went out of business. Last year, it decided to convert to a new shell.

Little firms, *page 78*

Vendors that wear two hats

Giants such as IBM, DEC and Oracle are getting serious about the integration business

By Mark Mehler

Candy mint. Breath mint. Tastes great. Less filling. Computer vendor. Systems integrator.

Thanks to re-engineering, shrinking software profit margins, the spread of low-cost PCs and complex enterprise integration projects, a high-tech entry has been added to these "two-in-one" pairs.

During the past couple of years, IBM, Digital Equipment Corp., Unisys Corp., Microsoft Corp., Lotus Development Corp., Oracle Corp. and a host of other hardware and software companies have span out large consulting and integration organizations, both to support their core businesses and to create new revenue streams.

While these vendors have different strengths and missions, all are serious about succeeding in the crowded, $15 million marketplace.

Industry insiders say survival demands it. "Today, customers don't care what technology you use," says Mark Tebbe, president of Chicago-based client/server integration specialist Lante Corp. "The focus has clearly shifted to a business consulting role. No company can afford not to be in that business."

INSIDE
Big or small? Page 80

Oliver Pflug, a consultant at G2 Research, Inc. in Mountain View, Calif., adds that technology has made it difficult to separate systems from business re-engineering.

Talent raids

The most ambitious vendors are aggressively recruiting top consultants. Oracle, for example, recently hired Booz, Allen & Hamilton, Inc. heavyweights Ray Lane and Robert Shaw as president of Oracle USA and head of the 700-person Oracle Consulting Division, respectively.

Other product vendors are greedily eyeing the limited pool of consulting expertise.

Bonnie Digrius, project manager at Gartner Group, Inc., says this commitment to talent will separate the future standouts from the also-rans. "Bringing in a Ray Lane gives Oracle enormous credibility," she says.

Several big obstacles face every product vendor with designs on professional services. These include resource allocation, lack of track records on major projects and an inherent issue of neutrality that targets IBM and DEC.

Then there's the harsh fact that operating a service business is very different from running a hardware or software business, both from an organizational and a financial view.

"This is a relationship business," says Don Monaco, managing partner for integration services and technology at Andersen Consulting's Americas practice. Monaco, who predictably is skeptical about product vendors succeeding as full-blown consultancies, says most hardware and software firms have a lot to learn. "Managing a large portfolio of jobs, maintaining billables, is a very different thing than managing people who are out selling product," he says.

Top 10 integration vendors	
IBM	$1.96 billion
Andersen Consulting	$1.58 billion
Digital Equipment Corp.	$1.26 billion
Electronic Data Systems Corp.	$1.02 billion
Computer Sciences Corp.	$700 million
Unisys Corp.	$667 million
SHL Systemhouse, Inc.	$650 million
Control Data Corp.	$591 million
Boeing Computer Services	$370 million
TRW, Inc.	$350 million

Source: International Data Corp.

Vendors, *page 78*

At a glance

A quick glance at three vendors who recently took the integration plunge:

Oracle Consulting, in a bid for recognition, has raided Booz, Allen & Hamilton for its top brass, Robert Shaw. The consulting arm is growing at an annual rate of 25%. Look for it to eventually outstrip the company's product income by four times. Oracle Consulting has made a serious investment in personnel: The company employs approximately 700 people.

Microsoft tried the same trick as Oracle, tapping Ernst & Young partner Bob McDowell as its consultancy chief. With the Consulting Services unit numbering 220 staffers already, the company is figuring to add more than 100 more employees during the next eight months. Some Microsoft Consulting clients who have already signed on: Pacific Gas & Electric Co., Mirage Resorts, Inc. and Baxter Healthcare Corp.

Lotus Consulting Services is concentrating on a global strategy: Former Deloitte & Touche staff member David Connor heads up the group and is determined to move beyond Lotus' touchstone Notes and spreadsheets. The company has acquired consultancies in Canada, Germany and Dallas and is opening offices in Australia to strengthen its global punch. The division, which numbers about 160 employees, is raking in about twice its revenue forecast for fiscal 1992.

Little firms

CONTINUED FROM PAGE 77

After reviewing a variety of systems integrators in the expert area, it settled on Fusion, where several people from the original vendor had ended up. John Hancock found other advantages besides technical familiarity with the small integrator.

In terms of cost, "Fusion was a bargain," says Raymond Barr, a senior consultant at the firm.

Small firms, he notes, are hungrier for assignments and more willing to go the extra mile. Even when their hourly rates are the same as a large firm, they deliver more production per hour than the large firms, which may load more people than necessary on a project and tie them up in more meetings.

Barr also says he finds it easier to work with a small company. "You deal with the top people, and they know they have to do a good job." With large systems integrators, on the other hand, the top people are brought in for the sales presentation but disappear when it is time to do the actual project work, he says.

SMS' Hal Neumann: *'The big guys are more likely to tell us to take a hike'*

Small size can hurt

On the other side of that coin, dealing with the top people all the time can be a drawback: Smaller integrators typically lack the depth of talent found at the large firms. "They may revolve around one or two key people. If those people leave, you're out of luck," Meltzer says.

Specialized firms may also lack the financial wherewithal to survive, leaving the customer to scramble for support in the future. "We evaluated 11 systems integrators, and one went bankrupt during the selection process," he recalls.

Specialized systems integrators work best, customers report, with projects that have a clear start and finish. The assignment of three to four people for a project lasting between six and nine months is a comfortable size and duration for a specialist.

When the specialist seems to take up permanent residence in the company, it may be masking some underlying problem.

Such was the case at a major West Coast transportation company, reports Dick Tonnemacher, its former information resources director who is now a management consultant based in Novato, Calif.

In the late 1980s, the company launched a new business unit that was an immediate success, outstripping the ability of the company's central IS department to support it with systems.

"The IS people couldn't build systems fast enough, so the business people were trying to manage this unit with spreadsheets and PCs," Tonnemacher recalls.

He recommended the business unit call Marathon Systems, Inc., a San Francisco-based system integrator specializing in PC-based projects.

Marathon's assignment was to piece together some small systems with the PCs and spreadsheets already in place until the company's IS department could crank up a permanent solution.

"They showed up three days later and delivered something that worked in two weeks," Tonnemacher recalls.

With the heat off, the IS staff put the major project of integrating the business unit on the shelf. The result? The Marathon relationship continued for two years, encompassing file servers, databases and LAN technology.

Although the unit loved the service it received, the IS department paid dearly in the end. Management pressured the business unit to cut costs by turning over all its systems to the IS department, which was totally unprepared to support the PC-based systems.

The lesson, Tonnemacher says, is to bring IS into the systems integration effort early, even if it has to be dragged, and make sure it's prepared to carry on. •

Radding is a free-lance writer based in Newton, Mass.

Vendors that wear two hats

CONTINUED FROM PAGE 77

This challenge is reflected on the bottom line. "Consulting is a very expensive business over the long term," Digrius notes.

Product vendors also bring some big advantages to the consulting market. At the high end, IBM and DEC can try to link new re-engineering capabilities with strong systems design, implementation and outsourcing operations to create a total services offering.

Consulting divisions of product firms bring a deeper understanding of the guts of their systems — a big edge when the technology is as ubiquitous as Microsoft's on the desktop or as ground-breaking as Lotus' Notes in the workgroup arena.

Moreover, some customers may want long-term consulting relationships with their product vendors, simply to keep them on the hook indefinitely. Oracle Consulting's Shaw argues that the "traditional need for independent consultants to come in and study 35 solutions and do a bake-off" is dwindling.

"Companies, once they've made their backbone decision, want expert advice on how to leverage their investment to achieve the maximum business benefit," Shaw says. "We don't have to become masters of many different technologies to compete against Andersen and Price Waterhouse."

Shaw says Oracle Consulting is currently growing at a minimum of 25% annually. He envisions the possibility of increasing consulting/integration revenue to four times that of Oracle's product business. "This is no hobby for us," he says.

Bob McDowell, vice president of education and consulting services at Microsoft, likewise eyes rapid growth for the software giant's 220-member consulting services unit, hoping to add more than 100 people by June.

In Microsoft's case, the technology backbone is Windows, and the driver is client/server. Consulting focuses on designing and architecting custom applications for users requiring full-time, on-site assistance: building Windows front ends to existing client/server or legacy systems; and developing client/server systems from scratch for customers willing to take a higher risk. McDowell says Microsoft Consulting also eschews "the soup-to-nuts, all-things-to-all-people" consulting mentality. The firm, he says, is content to subcontract to Andersen Consulting and DEC on large client/server engagements.

> IBM, DEC, Unisys, Microsoft, Lotus, Oracle and Borland have all opened consulting arms within the last two to three years.

Lotus professes to harbor some lofty intentions for its services. Carla Marcinowski, director of business development at 2-year-old Lotus Consulting Services, says the operation has made a sharp departure from its modest initial goal of supporting existing customers.

Under new chief David Connor, formerly of Deloitte & Touche, Lotus Consulting is looking to expand beyond Notes and spreadsheet applications into "classical" consulting in multiplatform environments.

Marcinowski says Lotus Consulting aims to assist customers in the global deployment of network and workgroup computing. With the acquisition in September of three independent consultancies and the opening of new offices in Australia, the global strategy is beginning to come together, she says.

Lotus Consulting employs 160 workers and is running at twice its revenue forecast for 1992, Marcinowski says.

In terms of revenue and market share, all these newcomers have had a relatively small impact on the consulting sector, observers agree. There remains more than enough business and systems re-engineering work for even this crowded field to handle.

However, Lante's Tebbe says, some product vendors are making their presence felt in the constant scramble for good consulting help.

"I've had five people hired away by Microsoft. They've got the glamour appeal, and that's very scary when you consider the amount of investment a small integrator has to make in people." •

Mehler is a free-lance writer based in Jackson Heights, N.Y.

"Why's Apple talking to me about UNIX?"

Introducing MacX for Macintosh.

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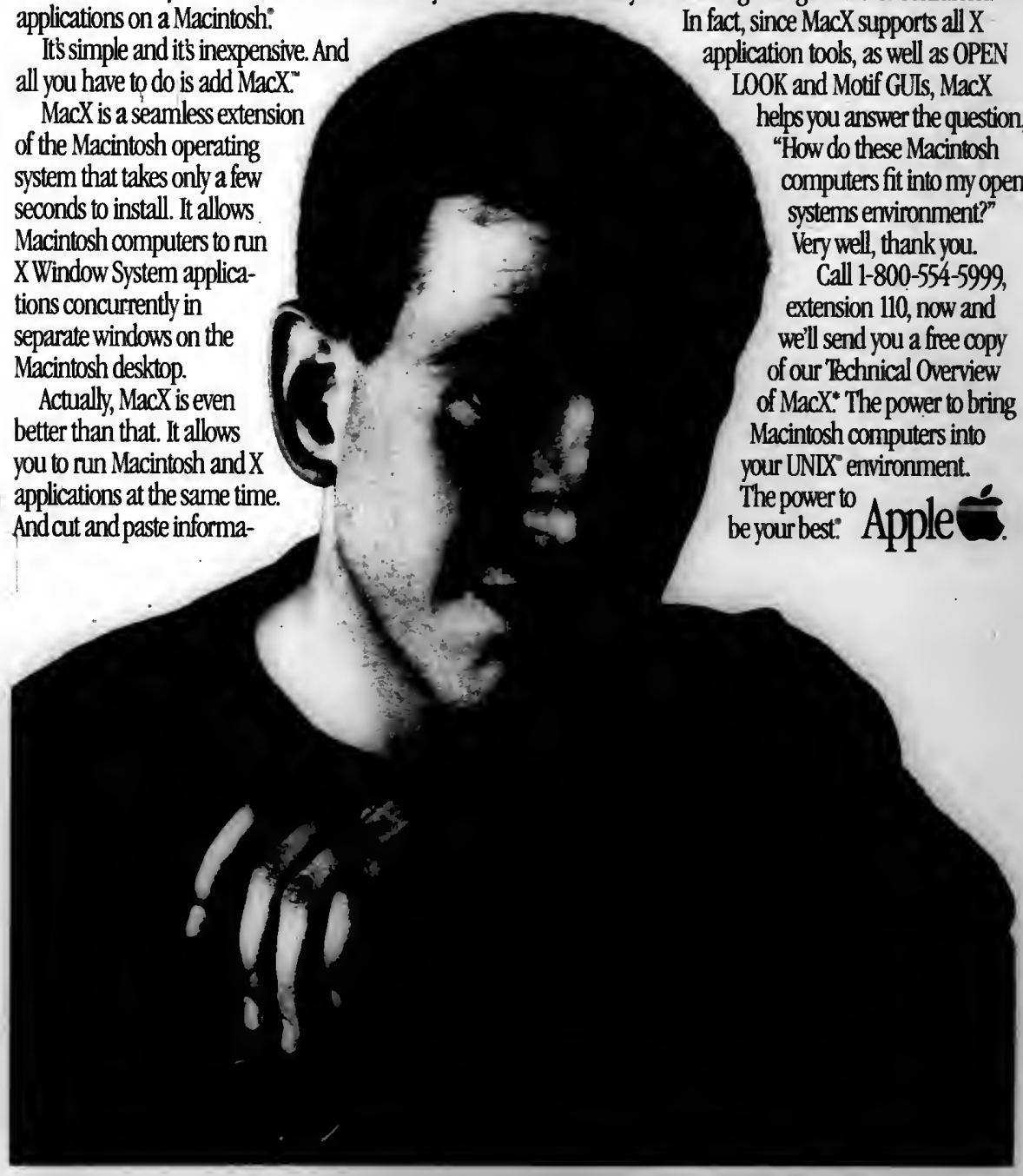


Big or small?

Is it better to do business with a giant systems integrator or a nimble specialist?

Pick a world-class decathlete

By Rudy Puryear

Puryear is a Chicago-based managing partner of Andersen Consulting's Information & Technology Strategy Practice for the Americas. Andersen Consulting is an international management and technology consulting organization that helps clients integrate strategy, people, processes and technology. The firm has more than 21,000 consultants in 151 offices and 46 countries.

The niche consultant is like an outstanding discus thrower who cannot pole vault or run the 100-meter hurdles. The full-service provider is like a decathlete. With a variety of strong skills, this player need not specialize in one event to be a world-class athlete.

I don't think the issue, however, is strictly "niche" vs. "large."

After all, some consultancies generate billion-dollar revenues and employ thousands of people. But they are still "niche" because they focus on one industry, one part of your business, one technology platform, one geographic region or one part of the solution — such as strategy or implementation.

Strengths: Technical depth, global reach

The *real* issue is knowing when to select a niche firm vs. a global, full-service provider. The latter offers industries around the world a complete spectrum of services, from strategy to implementation to change management to ongoing business process management. The former focuses on what it does best or where.

Based on 10 years of experience at a niche technology strategy firm, and now several years at Andersen Consulting, a global, full-service firm, I'd like to offer some guidelines about choosing which route is right for you.

Here are three characteristics common to clients of global, full-service providers:

■ **Complex business problems.** Do you simply need to tune a DB2 database? Or do you have a complex need, such as re-engineering part or all of your business?

The clients of global, full-service providers tend to have complex problems that affect all components of a business: people, business processes, information technology and strategy.

■ **Need complex solutions.** Many organizations today need innovative strategies tightly coupled with re-engineered business processes, which is a complex task. Many companies find a large consultancy can leverage skills that span the entire project cycle — from developing the plan to implementing the solution to helping smooth the path for re-engineering.

Moreover, such ways of doing things often call for new technologies from multiple vendors. Global, full-service providers can assemble the many pieces of such complex solutions in an unbiased way.

Rather than choosing a solution to match their capabilities, full-service providers can opt for the one that is best for the client. If an appropriate solution does not exist, the integrator can use its industry knowledge and technical skills to modify an existing solution or build a new one.

Plus, with extensive capital resources, big global firms can develop the skills to implement anything.

Finally, full-service firms can help manage change — a key part of any business process redesign.

■ **Global market and/or competition.** Often companies that are expanding internationally or facing tough off-shore competition need a partner that understands the global marketplace. Obviously, they'll want a company that does business in more than one nation itself.

It's also a good idea to partner with a global provider when you're targeting international customers or dealing with international suppliers. These consultancies deal with the same competitive challenges as their globally oriented clients, so they are well-equipped to handle these business issues.

Bottom line: There will always be narrowly defined problems that require niche solutions.

But if your international-minded organization struggles with complex business problems, a global, full-service provider may be your only choice. •

Watch out, Goliath!

By Barton Goldenberg

Goldenberg is chairman of Information Systems Experts, a Washington, D.C.-based systems integrator firm specializing in sales, customer service and marketing information systems.

The times, they're changing. Just as many companies are replacing mainframes with networked PCs, an important parallel trend is emerging: the rise of small, "lean and mean" systems integrators.

Driving the rise of the specialists is a widespread need to build simple, useful and growable systems for less time and money.

These small, new firms are not tied to old, stale ways of development but use new and proven approaches that can speed up work by 40% to 50%. Because we are not looking to sell canned products or for projects to keep hundreds of employees busy, we can look for simple solutions.

Often, this may be as simple as doing "iterative" development and testing that is quick, thanks to new object-oriented tools, along with proven methods.

Strengths: Flexibility, less costly, simpler approach

Because the project is done quickly with little labor, overall implementation cost is kept low. And because these systems are based on discrete functional modules — like "Lego" building blocks — customers select only those tailored modules that match their unique needs.

Perhaps most importantly, small integrators often use international software standards, such as the Open Software Foundation's OSF graphical user interface (GUI) standards such as X Window System, database standards such as SQL, multitasking operating systems standards such as Unix and de facto network standards from firms such as Novell, Inc.

The result is compatible applications that let customers continually grow their system using new technology.

Let's see how the "lean and mean" approach works in real life.

■ **Group Hospitalization and Medical Services, Inc.**, a large, Washington, D.C.-based health insurance firm, wanted to automate 24-hour health insurance eligibility questions for several hundred thousand customers traveling abroad.

Options included cross-Atlantic fiber-optic circuit, satellite transmissions and several communications networks. Development time for the project was estimated at six months to nine months at a cost of $250,000 to $500,000.

One quick look revealed that 24-hour access for an application that involves infrequent bursts of traffic amounted to overkill. So we developed an easy-to-use, graphical-based application running on a multitasking system connected to a public-switched X.25 data communications network.

The job cost less than $100,000 and was implemented in only 90 days.

■ **Development Alternative, Inc.**, an international consulting firm based in Bethesda, Md., was trying to develop a marketing information system last year to handle 50 currencies, 200 products and 100 units of measure.

The system had to be simple enough for use by clients of varying computer skills in locations with little or no technical back-up. Larger integrators either said, "It can't be done" or "We have a nice package that we could build an."

It was clear that the firm needed a presentation package and a project implementation tool. Using GUI and database management system tools, we built a powerful system that also looked good. The company president loved it.

These kind of big benefits are helping lean integrators gain respect. And small firms have begun to address the two key issues that will determine future growth: staffing and support.

A growing number of partnerships with large hardware, software and communications firms are helping to ensure needed client support services.

This creates a win-win scenario whereby big partners provide personnel and support, while small integrators become a new distribution channel.

Watch out Goliath — David has a pocket full of stones. •

"The customer

CHANGE, CHALLENGE, and a NEW DIRECTION

"There's nothing permanent except change" — an adage that could well describe the state of today's computer industry. Reduced margins, lower profitability, and slower growth are the result of rapid technological change. The investments required to maintain product leadership are enormous — more than some companies will be able to afford. A few are merging or forming new alliances. Others are leaving the industry altogether. The question remains: ***Who can you count on for the long term?*** Let's face it. What hasn't changed is your need to succeed and remain competitive. These needs have helped guide the development and delivery of ***Digital's Alpha AXP Program*** — a program committed to helping sustain your competitive advantage well into the 21st century.

By Ed Pastor
Market Development Manager
Alpha AXP Program

With its Alpha AXP Program, Digital is putting you and your success first. You've told us that you need an information technology supplier who can deliver value over the long term — a vendor who will:

- Help you succeed
- Give you the best information technology
- Deliver open computing solutions
- Offer an easy and efficient way of doing business.

We listened closely, asking you for specifics. Naturally, you had a lot to say.

On Becoming Successful

Every business looks toward the future — toward continued growth and success. You've stated that your success partly depends on acquiring applications that are right for your business. What you're looking for is the broadest and deepest application portfolio in the computing industry.

But you didn't stop there. You explained that comprehensive support and service also play an important part in your success. You want easy access to industry-knowledgeable experts who are dedicated to your business and who can address your specific needs. Of equal importance is a portfolio of partners who can provide you with products and services that are complementary to Digital's.

To top it off, these applications, services, and partners must be available worldwide.

Does one vendor deliver all of this? Digital does with the Alpha AXP Program.

On Getting the Best Information Technology Money Can Buy

When your competitive advantage depends on information technology, you want access to the best. Your definition of "the best" encompasses many dimensions. One aspect is balanced systems that can be upgraded over time — with memory, I/O capacity, high-speed mass storage, and communication capability to match their very high speed microprocessors.

Another important dimension is a full 64-bit architecture that can support multiple operating systems today, as well as others that will be invented in the future. You're looking for an architecture that can scale from the smallest palmtop device up to the largest supercomputer.

Your success is also dependent upon software that will help you build a distributed, multivendor computing environment designed to support future client/server computing styles.

A tall order? Not for Digital. Alpha AXP systems and Network Application Support (NAS) will take your business into the 21st century.

On Open Solutions from Multiple Sources

There are many dimensions to openness. You require availability from multiple sources and at competitive prices. Plus, you need support for software standards like POSIX, and XPG3 branding, as well as support for industry-standard networks and busses.

You've told us that you want the freedom to choose the operating system on which you will deploy your applications. You want Windows NT, a UNIX operating system that supports the OSF/USL Unified Open UNIX definition, and OpenVMS. You added that true, open, multivendor solutions are critically dependent on the ability of your IT vendor to service and support your multivendor computing environment.

Can one vendor provide this kind of "universal" platform and the services it demands? Digital does with the Alpha AXP Program.

On the Ease of Doing Business

Perhaps the technology you need is available. But the purchase process is not easy, and the price tag is out of reach. You're looking for a vendor with whom you can easily do business and who can offer you:

- Fair, consistent pricing, without complicated discounts and adjustments
- Investment protection for software, training, and data as you move to 64-bit computing
- One-stop shopping for services
- Simple software licensing terms across hardware platforms.

You need a vendor who utilizes a flexible approach in providing you with successful business solutions.

Is there any vendor who can do it all? Yes — Digital.

continued ▶

continued ▼

We Offer You Four Commitments
Our Alpha AXP Program is designed to help you succeed today, tomorrow, and in the future. That means you can expect us to make good on four key commitments.

Delivery of 21st Century Computing
First, Alpha AXP is the only architecture that delivers the features that are required for 21st century computing — features that include scalable CPU performance and full 64-bit addressing. These will enable you to run today's applications faster at reduced costs, and will allow you to efficiently access very large databases.

Today's first generation Alpha AXP microprocessor, the DECchip 21064, runs at up to 200 megahertz — twice as fast as the nearest competition. In the future, you can expect to see the performance of Alpha AXP-based systems increase by a factor of 1,000.

Alpha AXP will be the platform of choice for the next generation of applications that use new technologies, such as video imaging, artificial intelligence, and voice user interfaces.

Delivery of a Universal Platform
Second, Alpha AXP is the universal platform for software development and deployment.

Today, Alpha AXP supports OpenVMS, OSF/1, and Microsoft's Windows NT. Other operating systems will be added over the next 12 to 18 months.

Digital will offer the broadest and deepest portfolio of Alpha AXP applications. Already, more than 900 software vendors have committed to make their applications available on Alpha AXP systems.

Plus, to ensure broad-based availability of Alpha AXP hardware and software, we're licensing the Alpha AXP architecture and selling Alpha AXP chips, boards, and systems — making it easy for vendors to incorporate them into their products. To date, three system vendors (Cray Research, Kubota Pacific Computer, and Olivetti) and more than 30 technical OEMs are committed to using Alpha AXP.

Delivery of Worldwide Services
Third, Alpha AXP offers a complete portfolio of services worldwide to help you succeed.

At over 30 Alpha AXP resource centers around the globe, Digital provides you with a seamless transition to Alpha AXP technology and products — helping you to maximize the investments you've already made in systems, software, data, and development of your staff. Plus, Digital's worldwide consulting capabilities help you capitalize on new business opportunities.

Our ultimate goal is to provide the multivendor support and systems integration services you require anywhere you need them.

Delivery of Cost-effective Solutions
Lastly, Digital offers you the easiest, most cost-effective way to build solutions today and tomorrow.

The Alpha-ready program provides a clearly-defined path to the future with today's products. The same data, the same applications, the same software, and the same user training that you utilize on today's VAX system and DECsystem products will be available on tomorrow's Alpha AXP systems.

Alpha AXP provides you with the programs, the tools, and the services to make it easy to extend your current computing environment by adding new Alpha AXP systems.

Meeting Your Needs
With Alpha AXP, Digital will meet and exceed all your requirements. After all, we have one very clear goal: the success of your business.

The Alpha AXP ANGLE

VAX Systems: Even More Valuable with Alpha AXP Systems

You can solve the most demanding applications today with Alpha-ready OpenVMS VAX systems — at price/performance levels that match even the latest RISC/UNIX systems. What's more, all of today's Alpha-ready systems and future, faster VAX systems will enable you to move to Digital's breakthrough Alpha AXP systems when you're ready.

Your Investment Is Enhanced
You're happy with the power and performance provided by your current OpenVMS VAX system, but you'd like to have the option of moving to an Alpha AXP system at some point in the future. But you have questions: Will my current investments be protected? How about investments I make in VAX system upgrades in the coming year? Can I take advantage of the best features of both systems as I make the transition?

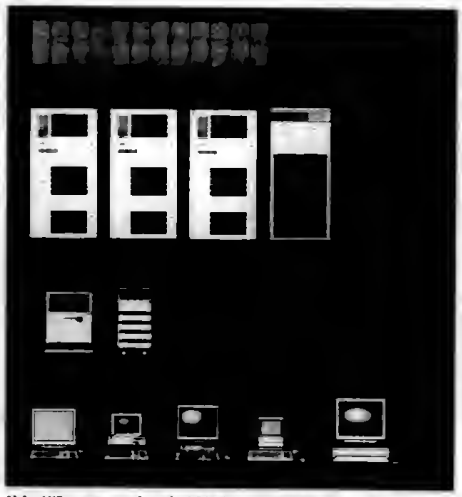
To answer these questions, first consider that 80 to 90 percent of your investment in computer systems resides in:

- Personnel and training
- Applications
- Languages networking
- Operating system
- Peripherals.

Then consider this important fact: Digital's OpenVMS operating system runs the same, regardless of whether it's on a VAX or an Alpha AXP system. Thus, all the aforementioned investments are protected. In a sense, every VAX system already installed is Alpha-ready. The only new investment you make is in hardware. In fact, the new VAX 7000 and VAX 10000 systems require only a CPU board investment, since they already come complete with cabinet.

VAX and Alpha AXP Systems Work Together
Alpha AXP offers revolutionary performance in expandable packages — providing you with the flexibility to tailor it to meet the needs of your current and future computing environment. And since VAX and Alpha AXP systems share all the same OpenVMS features, they can coexist in your computing environment in a number of different ways.

For instance, you will be able to link VAX and Alpha AXP systems across local area and wide area networks immediately, and soon afterwards connect systems at the datacenter level by adding Alpha AXP to your VAXcluster systems. This linkage will enable each system to share the resources of that cluster. Other options include adding Alpha AXP servers to your workstation network, or adding Alpha AXP clients to your multivendor desktop devices.



Alpha AXP systems, such as the DEC 7000 AXP, the DEC 4000 AXP, and the DEC 3000 AXP, will work together with VAX systems because they run the same OpenVMS software. They'll connect to the same networks and clusters, run the same applications, have the same user interface, and use the same data.

Once connected to the same networks and clusters, Alpha AXP and VAX will run the same applications, have the same user interface, and use the same data. In addition, you can use a VAX system to develop software for Alpha AXP, or use an Alpha AXP system to develop software for VAX.

The VAX System Family Continues to Grow
Digital's commitment to support businesses operating in an OpenVMS VAX environment is reinforced by our plans to announce a major version of the OpenVMS operating system in 1993. This new version of OpenVMS will enable large, distributed VAX systems to be developed with significant performance and security enhancements.

We have plans to expand our entry-level line of Alpha-ready VAX 4000, VAX 7000, and VAX 10000 systems — complete with even higher levels of performance and industry-leading price/performance than their predecessors. Plus, these systems will coexist with the new generation of Alpha AXP systems in networks and VAXcluster configurations.

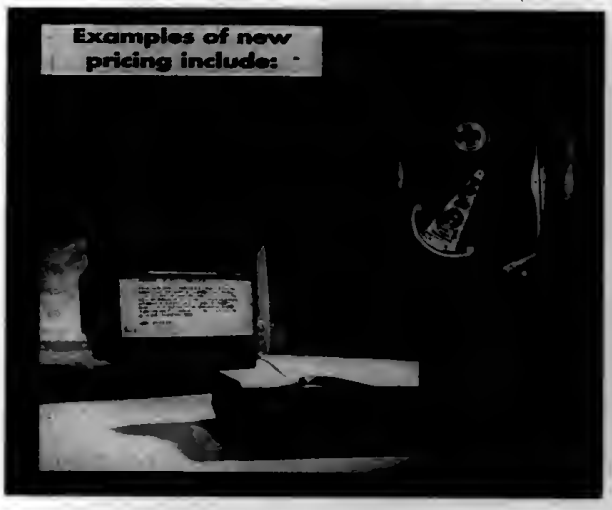
In addition, Digital offers you cost-effective VAX and Alpha AXP upgrade programs — letting you move to Alpha-ready VAX systems and Alpha AXP systems in your own timeframe.

For FREE VAX performance reports or a FREE brochure titled *VAX Systems at a Glance*, call 800-DIGITAL (800-344-4825), press 2, and reference ext. 67U.

GOOD NEWS FOR YOUR BUSINESS

Buying from Digital Just Got Better

You've been talking to us — and we've been listening. Really listening. You've told us that when it comes to buying commodity products, two things are important: competitive pricing and easy purchasing. We hear you. And we're taking action.



Digital understands that the way you buy computer products has changed. Years ago, you had to purchase practically a whole team of support personnel to get you "up and runniog" and to make sure your new products "fit in." But, that was then.

Peripheral products (commodities, such as PCs, storage products, low-end networking pieces, and supplies) are available from almost any vendor. Therefore, your decision to buy is based mainly on price and availability. So why, you ask, shouldn't commodity products be easily purchased at very competitive prices? We agree. That's why we've revised our pricing practices. Under this new pricing structure, our list prices reflect a competitive net price for these products.

An Easier Buying Process

Digital's new pricing structure cuts right to the chase with a simple pricing approach to ordering that gives you a "final price" price. No more fumbling with calculators to figure out contractual discounts; no more hassles with price negotiations. Plus, to save you even more, we're giving you quantity price breaks on selected products. The result? You get a very competitive price and a discount on top of that for buying in quantity.

Quantity Price Breaks

Here's how it works. Line-item quantity price breaks (QPB) are available to you and our Business Partners on selected hardware option products. That means you get up to 15 percent off on the following products when purchased in quantity:

Storage
- SCSI disks and tapes
- DSSI disks, tapes, and arrays
- SDI disks, tapes, and arrays
- Floppy disks
- Optical products
- Tape, disk, floppy, and optical media.

Memory
- Workstation memory.

Video, Image, and Printers
- Desktop printers
- PrintServer networked printers
- Video X Window terminals
- Printer and video accessories and supplies.

Networks and Communication
- Hub-based products
- InfoServer CD-ROM servers
- Terminal servers
- PC controller cards
- FDDI products.

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Ordering is as simple as picking up the phooe. Call us, fax us, or use the Electronic Connection. More than 300 experts are ready to explain Digital's new pricing program and quote new price points. One phone call to 800-DIGITAL enables you to:
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To access the Electronic Connection anytime, dial 800-234-1998 at 1200 to 9600 baud, from a Digital-compatible terminal or PC.

Perhaps you're working with one of our Business Partners. If so, they can answer any questions you may have on products and pricing.

There's More to Come

Digital has always been the quality choice. And now there's even more reason to choose us: we give you the quality you expect at prices you'll value. And this is only the beginning. We're already working on other ways to continue our commitment to serve you better.

For detailed product and pricing information, call 800-DIGITAL (800-344-4825), press 1, and ask for your FREE copy of our new DECdirect *FastFind* catalog.

What Can Digital's Solid State Disks Offer Your Business?

SPEED, SPEED, and SPEED

First, the good news. **The power of Digital VAX and RISC system processors has increased dramatically in recent years. Now, the bad news. Heavy demands are placed on your most frequently accessed data. That means you sit and wait. How can you access critical data fast in order to complete your job more efficiently? Discover the power and performance of Digital's solid state disks.**

The EF5x series of solid state disk (SSD) for Digital Storage System Interconnect (DSSI) systems is a market leader in terms of price/performance. The series, available in a 107-megabyte unit and a 205-megabyte unit, delivers lightning-fast I/O that can match the CPU power of your VAX 4000, VAX 6000, VAX 7000, VAX 10000, and VAXcluster systems. That means you no longer have to sit and wait for critical data while business deadlines loom closer and closer.

DSSI solid state disks match your CPU processing speeds by executing more than 800 I/O requests per second — I/O throughput that is ideally suited for maximizing revenue-producing and beat-the-clock types of applications. For example:

- A financial services organization implemented Digital's solid state disks and realized a tenfold increase — from 2–3 to 20–30 per second — in the number of trade orders it could execute.
- Before the installation of two of Digital's solid state disks, more than 1,500 system users at a major metropolitan newspaper experienced increased response times for many accounting and realtime applications. By adding two of Digital's solid state disks to its VAXcluster, the system's application response time was reduced by 75 percent. The newspaper's major benefits? Increased productivity and optimization of system performance.
- Efficient and timely routing is critical for the success of a freight carrier. As one freight company added hubs to its automated system, response was so slow that users waited up to 30 minutes for answers to routing inquiries. The bottlenecked system resulted in bottlenecked deliveries. Digital's solid state disks solved the problem — enabling the company to service the routing application's heavy disk I/O demand and still maintain fast system response.

SSD Features: Ease of Use and Data Protection

The "plug and play" design of Digital's solid state disks allows you to slide them into any 5.25-inch storage slot — without hardware or software modifications.

In addition, Digital's EF51 and EF52 models feature an integrated Data Retention System in order to provide the data permanence of magnetic disks. By automatically writing data from the solid state disk DRAMs to the integrated hard disk during a power outage, these solid state disks create safe, secure, nonvolatile storage for your system's most critical and valuable data.

Ready for Alpha AXP

Digital's DSSI-based solid state disks not only match the power of today's state-of-the-art system processors, but are ideally suited to match the power of Digital's Alpha AXP architecture as well.

For your FREE Digital Solid State Disk information sheet, call 800-DEC-INFO (800-332-4636), press 1, and reference ext. FAST.

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PRIVATE *matters*

E-mail privacy is a contentious issue. Here are some ideas for putting together a privacy policy that works.

JAMES KACTMAN

By Ernest A. Kallman and Sanford Sherizen

It's not enough to say you're for protecting the privacy rights of your users. You've got to act.

As information systems professionals, you are deeply involved in creating systems that have a direct impact on privacy. These systems exchange messages, text, data, images and digitized voice among computers. Every time users send an electronic-mail message, perform electronic data interchange (EDI), transfer funds, exchange voice mail, use videotext services or transmit a fax, they are leaving a trail of messages that may come back later to haunt them, their managers or the company.

Privacy issues pose problems for business executives and users. Executives, for instance, may face the prospect of a lawsuit. Right now, there are about half a dozen privacy lawsuits pending whose charges include invasion of privacy, wrongful termination, breach of contract and slander. For their part, users must deal with having their privacy challenged or limited.

Don't wait for the lawyers to etch your organization's privacy policies in stone. You have to get involved in helping your company understand privacy issues and develop appropriate policies, not only because privacy is becoming a major technical/social/legal issue but also because you may have something personal at stake: If a situation gets litigious enough, you may find yourself in court.

A good place to start is with policies associated with internal and public E-mail, which has in recent years become an area of privacy contention. And as one of the fastest growing forms of computer use — the number of electronic mailboxes has grown from 430,000 in 1980 to about 19 million today — E-mail isn't about to step out of the privacy limelight.

We'd like to help by providing some insight into what users should be told about E-mail privacy and suggesting some items that privacy policies should include. Putting together the right privacy policy will go a long way toward ensuring acceptable E-mail practices and will likely keep everyone out of court.

Educate users

One of the reasons privacy problems may crop up is a lack of understanding about E-mail on the part of users. Because they don't comprehend how E-mail works, users assume their messages are private.

Unfortunately, that's not the case. It's up to IS managers to ensure that users know what they are dealing with when it comes to E-mail so that they can use it appropriately. There's more at stake here than

Private matters, *page 86*

Hitting the books

Want more information about E-mail privacy? Try this recommended reading:

Privacy for Sale by Jeffrey Rothfeder (Simon & Schuster, 1992).

The Law of Electronic Commerce: EDI, Fax and E-mail by attorney Benjamin Wright (Little, Brown, 1991).

Continued from page 85

users' private information; the more users know about the E-mail system, the more they will guard correspondence containing company information (trade secrets, customer data, salary records, etc.).

Here is what IS should make sure users understand:

■ **A message does not disappear when it is received.** Most users think of E-mail as keyboard-to-keyboard or screen-to-screen transmission. Once it is received, the message is deleted or destroyed. However, they don't take into account the fact that the receiver often prints out the E-mail message.

Printing an E-mail message came into play during the Iran Contra investigations, in which a court ruled that a printed copy of an E-mail message between National Security Adviser John Poindexter and Oliver North could be used as evidence.

A rule of thumb might be this: If you would not send the information on a postcard through the postal service, you should hesitate to send it by E-mail.

In terms of public E-mail systems, most of these services keep records of messages for backup and administrative purposes. As long as these messages exist, people can get at them.

■ **The addressee may not be the only person reading the mail.** Even if a message is not printed but only appears on the screen, someone can read it if the terminal is left unattended. Perhaps more disturbing is that the sender has no control over what happens at the receiving end.

■ **Copies of messages aren't necessarily duplicates of the original.** When an E-mail message is received and that recipient forwards the message to another party, the last recipient has no way of knowing whether the original message was altered before it was forwarded.

■ **The E-mail process isn't innately private.** Lots of people can get into E-mail for legitimate reasons. For example, internal or external staffers can audit the communications facility to ensure its proper operations and security; law enforcement officers can investigate misconduct; supervisors can monitor employee activity; and IS staffers can perform operation control functions such as creating backup files, rerouting misaddressed messages

A tangled web

When Eugene Wang, former vice president of the Computer Languages Division at Borland International, Inc., left the company to join rival Symantec Corp., what happened next was a situation that may have ramifications for E-mail privacy policy.

Borland alleges that Wang may have traded Borland secrets to Symantec before leaving his job. To find evidence of this, Borland opened Wang's MCI Mail account, where it claims to have found messages that the company believes back up its suspicions. What followed were police searches of the homes of Wang and Symantec Chief Executive Officer Gordon Eubanks and Symantec offices, a pending criminal investigation of Wang and Eubanks and a civil suit by Borland against Symantec.

Wang, on advice of company attorneys, has separated himself for the time being from any work in Symantec's language area.

How were Borland and its attorneys able to get into Wang's mailbox, even though the federal Electronic Communications Privacy Act of 1986 protects messages in transmission on a public mail service such as MCI as well as after transmission and storage of said messages? According to Mitchell Kapor, head of the Electronic Frontier Foundation, a group interested in individual computer users' rights, the intrusions were explained as a property right: Borland was paying the bills for Wang's MCI account. When Wang left, his E-mail reverted back to the corporation.

In an article in *Forbes* magazine, Kapor says Borland could have strengthened its case against Wang if it had announced its policies on E-mail. The company, however, reportedly continues without a formal E-mail privacy policy to explain when, messages sent from company equipment are company property.

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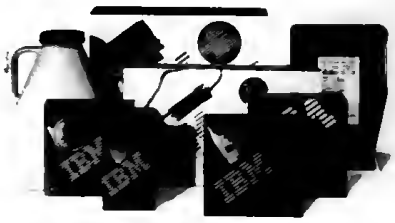

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and reissuing lost passwords.

■ **People can break into an E-mail system.** Hackers, disgruntled employees and even corporate or government spies and saboteurs have attempted to gain (and in some cases succeeded in gaining) unauthorized access to users' messages.

■ **The technology can work against privacy.** Sometimes, not understanding the software that supports the messaging operation causes problems. For example, using the REPLY command in some software to automatically send a reply to a message can be problematic. If they're not careful, users can mistakenly send the message not only to the original addressee but also to all those copied in the original message.

This often happens when a user responds to a message posted on an electronic bulletin board or forum. Rather than the reply going only to the message originator, all subscribers to that discussinn receive it.

In one actual case, a vice president at a computer vendor company responded nastily to a message and inadvertently broadcast it to a group of people rather than to one person, as he had intended.

Time to talk

Once you've got the message out about E-mail — how it works and why it's not so private — you've got the basis for a dialogue among IS, management and users from which a privacy policy can emerge. Human resources and the legal department should also eventually be part of this team.

Ideally, privacy should be viewed as a functional activity that the entire organization can support. For some organizations, this will mean a change from asking "What can we legally do with information about our employees?" to "What is an appropriate way to collect, use, distribute and store employee information?"

Foreign affairs

As of Jan. 1, 1993, the European Community (EC) is enacting laws and regulations regarding privacy and information protection. In essence, private information cannot be moved out of one EC country into another unless the target country has adequate privacy protection.

In one case, information could not be sent from France to automaker Fiat in Italy because Italy doesn't have adequate protection.

In the end, U.S. companies doing business in Europe may very well spur the move to defining a national privacy policy in the U.S. Without such a policy, it is conceivable that U.S. companies in Europe may not be able to send E-mail and other messages to the U.S.

The former question results only in a narrow, legal definition of privacy. It's old-time management thinking: We own everything, and the employee owns nothing. The latter question is broad in scope and keys in on appropriateness — what's right for the organizations *and* its employees, so no one gets wronged.

Before putting together a policy, you may want to undertake a privacy audit to review the adequacy of privacy protection in the collection, use, distribution and storage of information throughout the organization. When you're ready to formulate your policy, use the following items as your guide:

- E-mail policies should take into consideration the law, public opinion, technology, existing employer/employee agreements and other relevant factors.
- The policy should cover all E-mail, whether internal or external (exchanged over public carriers).
- The policy should contain statements about what is considered private E-mail and under what conditions an E-mail message can be read (such as when an employee is absent or ill for an extended period of time, what the legal grounds are for reading it and who will read it).
- A senior executive should act as the organizational privacy officer to ensure that policies are written, promulgated and implemented.
- The policy must have immediacy. Establish and implement an E-mail privacy policy as soon as possible. Employees presume privacy unless informed otherwise.
- Make sure employees know what is expected of them. This may include having them sign off on the policy.
- A good privacy policy is best supported by appropriate security practices and an environment that fosters ethical computer use.
- Keep the policy relevant, changing it as technology changes.

. . . . . .

Privacy is not a liberal plot. It is of great concern to many people and is receiving legislative attention. Privacy laws are appearing every day. Court cases are in the news (see story page 86).

For its part, E-mail privacy is just the tip of the iceberg. Privacy practices not only need to eventually encompass EDI, voice mail, videotext and so on but must also go even broader to cover privacy in the corporation in general. For instance, do employers have the right to look in your desk drawer?

The best advice is start right now on a policy for your company. •

Kallman is a professor of computer information systems at Bentley College in Waltham, Mass., where he teaches about privacy and ethics. Sherizen is an information security consultant and president of Data Security Systems, Inc. in Natick, Mass.

Unsavory choices

You don't want to take the easy way out when it comes to an E-mail privacy policy. Avoid the following two "easy" choices:

Choice 1. E-mail messages are open to the organization regardless of content. Everything on the system and network belongs to the organization. No privacy rights for employees are appropriate.

This choice starts management/employee wars. Any employee privacy rights will have to be won, traded or negotiated. Employees will be angry and may even sue. Do you want to be known as the company that "invades worker privacy" or "violates the public trust"?

Choice 2. Conditional privacy. The company tells employees that their privacy will be protected only if certain management-defined criteria are met. For example, a message must be deemed appropriate, have a certain format, appear only in certain forums and bulletin boards and so on.

In this case, the company has announced employee privacy rights but with so many restrictions that workers view the policies as a legal trick to protect the organization from lawsuits. The main message employees walk away with is, "Be careful, we're watching you." There's no faster way to demoralize employees and devalue E-mail.

Furthermore, such a stringent policy might cause employees, worrying about being trapped or tapped, to use E-mail too carefully. In the end, they will likely be less productive.

For example, Hewlett-Packard Co. experienced a two-thirds reduction in E-mail use after it let users know supervisors might monitor the system, according to Jeffrey Rothfeder, author of *Privacy for Sale*. While some of that message exchange may have been "social," some of it was probably work-related.

Some organizations are defining E-mail privacy

Interex, Aerospace Industry Association take a stand: 'It is just common sense'

■ **Some organizations are doing more than just talking about E-mail privacy guidelines — they're crafting some of their own.**

Interex, the $8 million nonprofit Hewlett-Packard Co. user group, established a formal E-mail privacy policy as the direct result of publicity surrounding a 1990 incident in which Epson America, Inc. fired its E-mail administrator, Alana Shoars, after she questioned the company's alleged monitoring of employee messages.

"To me, the fact that anybody would even think of doing what happened in that case was appalling," says Steve Souza, technical systems specialist at the Sunnyvale, Calif., organization.

After contacting Shoars and finding out what happened, Souza wrote an E-mail privacy policy that Interex's IS department and board of directors approved in late 1991.

The policy governs any interaction among Interex's 42 staff members, volunteers, committee members, board of directors and its 10,000 members. Some of its specific tenets are as follows:

- E-mail is considered private, direct communication between sender and recipient(s).
- E-mail will not be monitored, observed, viewed, displayed or reproduced in any form by anyone other than the sender or intended recipient(s).
- In the case of employment termination or when an employee is absent for an extended period of time, work-related mail is forwarded to the most appropriate employee. Personal messages are forwarded to the intended recipient. If that's not possible, they're destroyed. Messages aren't examined further than is necessary to determine in which category they fall.

. . . . . .

The impetus for creating guidelines for E-mail privacy for the 54 members of the Aerospace Industry Association of America, Inc. came from the members themselves, says Joseph Dauksys, director of information technology and quality assurance at the Washington, D.C.-based group. "A lot of it is just common sense for people working with E-mail," Dauksys says.

Do it yourself

While no numbers exist on how many companies in the U.S. have E-mail privacy policies, the Electronic Mail Association in Arlington, Va., says it receives about two requests a week for its corporate E-mail privacy policy kit. The association has sent out approximately 200 kits since 1991. For more information, call (703) 875-8620.

Recommendations in the the four-page document, which a committee pulled together during six months in 1991, include the following:

- Employees should be advised of their company's E-mail privacy policies.
- Companies shall treat E-mail transmission and files as private information.
- Company E-mail is for the primary purpose of correspondence relating to business.
- The company will not routinely monitor E-mail for the purpose of discovering misconduct.

— *Lory Zoltola Dix, senior editor, in depth.*

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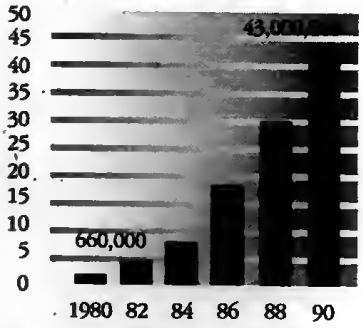

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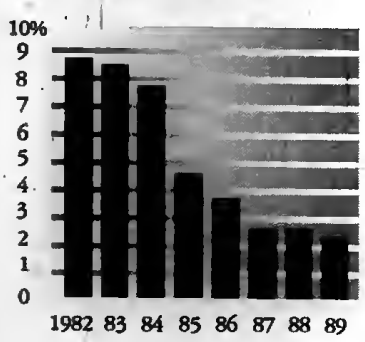

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Computer Careers

This article, the second in a two-part series, looks at the pressures and worries IS managers grapple with on a day-to-day basis and how these factors can affect their departments.

Pity your overworked manager

By Alice Bredin

Has your manager been acting like he's had one cup of coffee too many? Has he been jumping down your throat and placing unreasonable demands on you? Don't take it personally. Chances are, he's experiencing the same thing from his own boss.

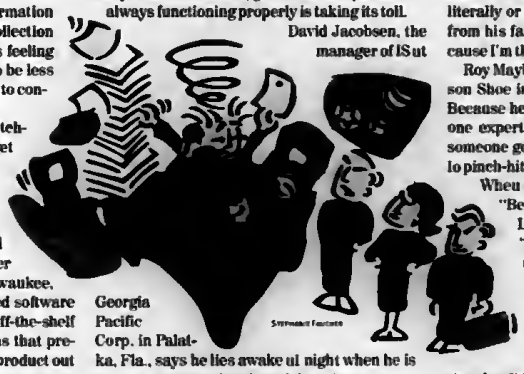
Chris Boisaubin, director of information systems at Van Ru Credit Corp., a collection agency in Skokie, Ill., says when he's feeling the heat from a higher-up, he tends to be less forgiving of his staff and not as willing to consider excuses or mitigating factors.

A few of the issues that could be stretching your manager's patience are budget constraints, personnel shortages, increased support demands from users and growing demand for key systems in all business areas.

Or it could be something else. Mel Culp, MIS director at Siemens Power Corp.'s Fossil Power Division in Milwaukee, says the declining quality of packaged software gives him the most stress. He says off-the-shelf software often has bugs and problems that prevent the department from getting the product out to users. It's taking more time for his people to fix the bugs, which takes them away from other jobs.

What's toughest, Culp says, is keeping multiple balls in the air as a working manager. "There are more decisions than ever before and more interruptions in my day," says Culp, who must also do technical jobs when no one else is available. "I have to turn on my voice mail and hide behind it until I have a break to go through all my calls and decide who I have time to call back."

Service levels and response time have become more critical than ever, as computer systems have grown more interconnected and more critical to business operations. Many managers say the pressure of ensuring that critical systems are always functioning properly is taking its toll.



David Jacobsen, the manager of IS at Georgia Pacific Corp. in Palatka, Fla., says he lies awake at night when he is close to a solution but doesn't have it yet.

"Today, with the extent of integration, if it doesn't work just right, we are holding up the business, we are influencing profits and customer satisfaction and we are influencing the achievement of production," Jacobsen explains.

Michael McFarlin, director of IS at Mary Meyer Corp., a maker of stuffed toys in Townsend, Md., acknowledges all of these stresses but says it's personality-related issues that affect him the most. "If I'm going to take stress home, it's usually a run-in with someone at work," he says.

McFarlin added that such conflicts usually occur with peers or higher level managers, not with his staff, and most often concern policy disagreements. He says taking his work home with him, literally or figuratively, takes his energies away from his family. "It's stressful for my family because I'm there, but I'm not there," he says.

Roy Mayberry has been a manager of IS at Mason Shoe in Chippewa Falls, Wis., for 27 years. Because he works at a small company with only one expert in each application, he frets when someone goes on vacation or is out sick. He has to pinch-hit, sometimes at 4 a.m.

When hours are long, families pay a price. "Before I got this job, I was living in St. Louis working 9 to 5," Boisaubin says. "When I started here, I was working about 18 hours a day, and my not being around put strain on my wife and kids."

Boisaubin says his family has remained intact despite the long hours and after-hours stress, but for a long time he didn't have too much time to spare for them. "Even now that the hours are better, I just don't have the energy I used to before I was a manager," he explains. "I wish I could make the money I make now and have the pressures and hours I had when I was a programmer."

Bredin is a free-lance writer based in New York.

Stressed out?

What can you do when your manager takes his stress out on the staff?

- ✓ Don't take it personally; try not to internalize it.
- ✓ Focus on the task; not the person; focus on getting the job done.
- ✓ Let your manager know you know he's having a hard time.
- ✓ Try to see things through his eyes.
- ✓ Talk to him directly or, if the situation warrants, to his manager.
- ✓ Wait it out. Sometimes that's the best you can do.

Source: Naomi Karten, president of Karten Associates, Randolph, Mass

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Career advice for the '90s

Skipping basics will hurt later

Fast Track is a twice-monthly column dedicated to answering questions on career directions. This week's guest adviser is Jeff Jones, a principal at Andersen, Jones & Muller Associates, a recruiting firm in Southfield, Mich., specializing in the placement of IS professionals.

Q: I was hired into a commercial programmer training program at a major computer services firm. Prior to entering the technical training phase of this program, I was working at a customer site as a coordinator.

Recently, my manager offered me a position as a business analyst. What would be best for my career?

A: Your ability to grow into more responsible positions and transfer to other jobs or companies depends on the skills base you have acquired early in your career, and programming is still the foundation of most career paths in the IS arena. Analytical skills are less transferable to other jobs and industries.

Spending two or three years coding and learning the development process gives you a stronger career path. It will also make you a better analyst when you move in that direction.

Q: I am the only person in my IS department who knows our payroll system. I am tired of payroll work, but no one else wants to do it. My boss walks away whenever I complain. What can I do to get a different assignment?

A: Take initiative to learn other meaningful application systems by filling in during absences or vacations. Second, look for chances to initiate new hires or trainees in your applications.

If all else fails, look for an opportunity outside your company that leverages your payroll skills but offers additional diverse assignments.

Q: I am a senior programmer analyst with experience in CICS, VSAM, DB2, Cobol, MS-DOS and FoxPro. I'm considering learning new technologies — possibly database administration — to continue to be marketable. What do you suggest?

A: Try to get training in database internals and physical design. You might also use your mainframe and PC skills augmented with training in LANs and SQL to move toward client/server applications development.

Both of those areas are marketable, but you must apply skills in the work environment for them to be recognized.

Q: I have been a programmer in the insurance industry for five years. I recently had a baby and would like to be at home more. What is the best way to find a part-time position?

A: Start by looking in your own company — your experience is most valuable there. While the IS industry has not generally accepted the concept of part-time workers, you may be successful by taking the following steps:

Put together a written proposal to your manager outlining your desired schedule; point out the pros and cons of off-site (home) work activities, as well as the benefits of retaining your expertise and the costs associated with hiring and training a replacement.

Indicate a target time period when you could move back to full-time status.

Outside your firm, concentrate your search on organizations that use your exact skills — in this case, insurance companies.

☞ Sure that you're being undervalued? Stressed out? Feeling discriminated against? WE WANT TO HEAR ABOUT THESE AND OTHER ISSUES THAT AFFECT YOUR CAREER. CALL YOUR QUESTIONS INTO THE FAST TRACK LINE AT (508) 820-8522 OR FAX THEM TO KELLY E. SEWELL AT (508) 875-8931. IF WE USE YOUR QUESTION, WE'LL SEND YOU A GIFT.

How to handle Project Politics

■ You have to know your team well and what their goals and objectives are, and you try to incorporate those into your own and reach a balance. There has to be a collaboration, and building the right team in the start.

Lee Keene, assistant administrator, special projects
City of Columbus, Columbus, Ohio

TIPS for the TIMES

■ There's no such thing as a project without politics. Making sure that the program we're creating will be useful to the people using it is what we call politics. Conflict occurs when the product designers and the various user groups differ on what is useful. So, you regularly get everyone together until they agree.

Henry Rabinowitz, technical director, expert systems lab
Nynex Science and Technology, White Plains, N.Y.

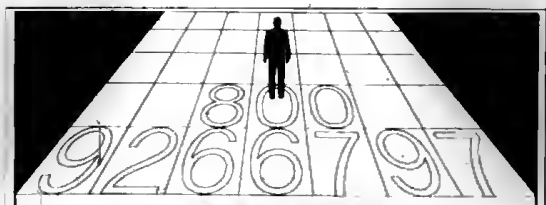
■ There are at least two aspects to project politics. You have systems analysts and programmers in one group and application users in the other. You have some control over the programmers and analysts, but with users, there are so many different groups that it's difficult. You have to use finesse and diplomacy.

John Murphy, security management, data processing
Mecklenburg County, Charlotte, N.C.

■ We include as many users and management people as possible in the requirements definition phase, and then we do a lot of follow-up. That keeps politics to a minimum, and we haven't experienced many problems.

Brian Hawthorne, manager of systems development
Providence Gas Co., Providence, R.I.

Compiled by Leslie Goff, a free-lance writer in New York.



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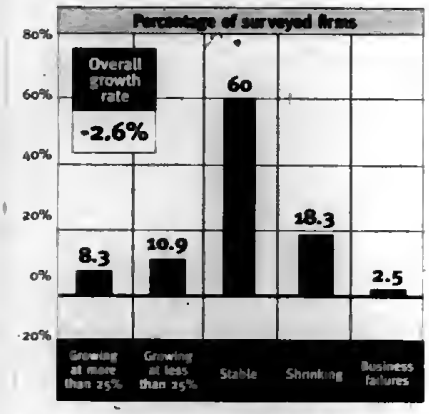

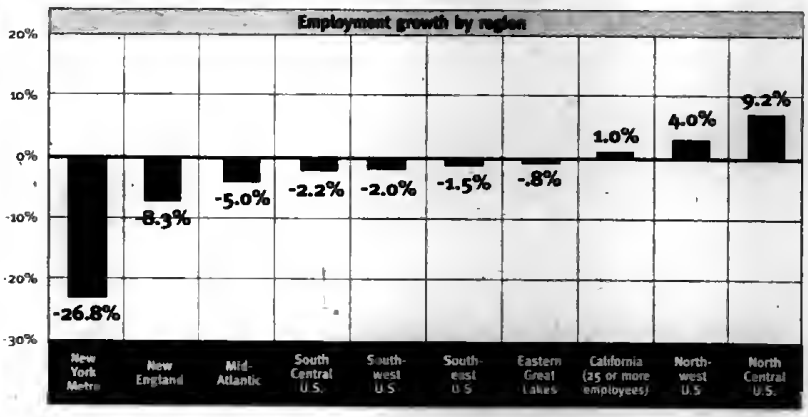

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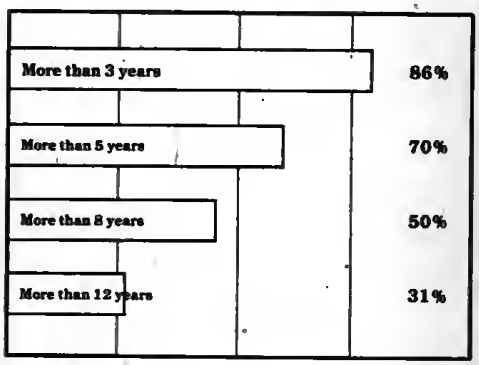

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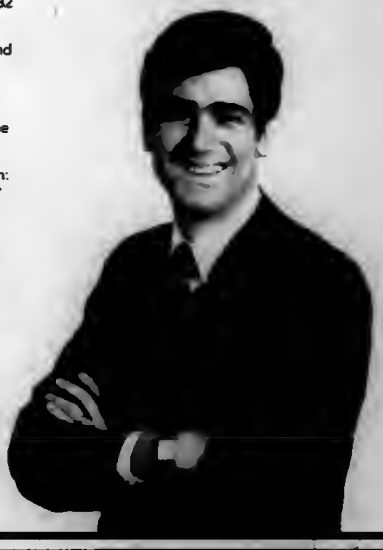

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BEST READ

Marketplace

Oh, the pain of purchasing software!

By Anonymous

Occasionally, people have to do some rather unpleasant things, such as painting the house or going to the dentist — or just being a dentist. But none of these compare with the stress of buying software. People truly suffer when buying software, especially expensive large systems software.

When buying software, there's a lot of information you need to know. Stuff salesmen hope you'll never know and questions they hope you'll never ask. But ask before you sign on the dotted line. You could be betting your company on this decision.

The first thing you have to know is that users talk to other users. That's why vendors provide dozens of great user references who'll talk all day about graphical user interfaces, features, ease of use or anything else that users love to stick in their requests for proposals.

But while users check user references, information systems managers must also check IS references. Was the software easy to install? Did the code compile the first time? While you're on the phone, you may also want to ask about...

■ Processor requirements. Sometimes software looks great — until users start measuring response time with a calendar. Find out about performance! Just because the system screams during a demo does not mean it will scream on your CPU.

Also find out about CPU pricing. Does a bigger CPU mean a bigger software license? What if you run it in a smaller partition? Or multiple copies in multiple partitions? Will you be charged extra? Know the answers before you buy. Only then, after you've gone beyond the technical issues, can you satisfy your chief financial officer by...

■ Deciding how to pay. Everyone worries about haggling over how much to pay. But when to pay is another story. Never, never, never buy the software, mount the tapes and write a check for the whole thing.

If the stuff doesn't work, or even if it does work, you'll still need support and fixes. And if the vendor already has your money, he may suddenly forget to return your calls.

Some firms offer monthly licenses. Others let you pay a portion when you sign the contract, a portion when you get the tapes and a portion when you "go live." Another good idea is to ask to hold a portion back until one year after you're live, ensuring you get timely support and fixes. But once that's done, you've got an even bigger problem: wading through which software charges are standard and which are...

■ Extra charges. Nothing is free anymore. I had a coupon for a free salad, and they charged me for the dressing. I bought a $100 suit and got hit for $80 in alterations. Ask about every possible charge. Get them waived — in writing. It may seem ludicrous to argue about $9 in overnight mail when you're buying a $900,000 system, but you'll get stuck with a shipping invoice every other month. You'll have to hassle with purchase orders or petty cash. So don't pay for this or any other stuff your salesman refers to as...

■ Other services. Vendors don't make enough on software anymore. So they try to hit you up for a lot of other services. They'll offer installation, training, custom interfaces, maintenance, modification retrofitting and Ginsu knives.

Salesmen get fat commissions for selling software. But they get fatter commissions for selling services. Not that services are bad. You might even need them, especially if every time you've tried to do your own installation, the tapes show up inside-out or written in Hebrew or erased by an airport X-ray machine. But be smart. Ask for these services, and ask for them for free. Make the salesman use them to close the sale. If you don't, you might be sorry, especially if the vendor is notoriously bad regarding...

■ Fixes, support and new releases. Now let's be fair, this is software. New versions are always late. There are always bugs.

So ask a lot of questions. Of course, you'll get lots of flowery answers, so push the vendor as far as you can go. Bring up the three words that strike fear in the heart of the high-tech industry: service-level agreements.

Vendors will waffle on service-level agreements faster than Aunt Jemima. You'll get plenty of "But we'll have to raise our price," or "I'll have to ask my boss," or "Gosh, I think we have a bad connection." But be firm. Get something in writing.

And finally, ask a vendor if he has a toll-free support hot line. I've seen vendors with hot lines in Nebraska, Guam and Taiwan. I've got nothing against these places, but if you're in Baltimore and sitting on that Guam hot line, it might be cheaper just to hire another systems programmer.

The writer is a software salesman in a major Midwestern city.

At a glance

DO

- ✓ Negotiate the payment schedule, not just the payment.
- ✓ Ask for service level agreements.
- ✓ Make sure there is toll-free phone support and test it.
- ✓ Get commitments about performance and response time.
- ✓ Get IS references, not just end-user references.
- ✓ Find out how the CPU is priced.

DON'T

- ✓ Pay for training and services — negotiate them up front.
- ✓ Believe "the tape's in the mail" — and even if it is, don't assume you can read it.
- ✓ Stop asking questions about service and support.
- ✓ Pay for everything at once.
- ✓ Let the vendor stick you with extra charges.

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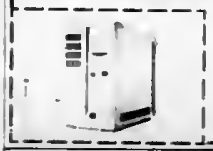

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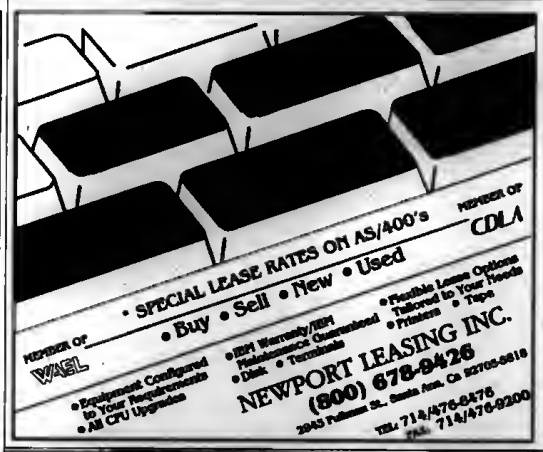

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Gainers Losers

Percent

Gainers		Losers	
Phoenix Technologies	30.00	Borland Int'l. Inc. (L)	-20.33
Excel Corp.	26.03	Egghead Discount Software	-19.79
Cambex Corp	25.93	Data Switch Corp	-16.67
System Software Assoc.	17.83	Artel Communication Corp	-14.96
Software Toolworks Inc.	17.50	Gandalf Technologies Inc.	-12.50
Cray Computer	16.67	Wang Labs Inc. (L)	-12.80
Gateway Communications	15.76	Intergraph Corp	-12.15
Emulex Corp.	15.25	Group 1 Software	-11.86

Dollar

Gainers		Losers	
Wellfleet Communications (H)	6.50	Borland Int'l. Inc. (L)	-6.13
System Software Assoc.	5.13	Autodesk Inc. (H)	-4.25
Cabletron Systems	5.00	3M Corp	-3.00
Southwestern Bell Corp.	4.75	IBM (L)	2.63
Cisco Systems Inc. (H)	4.25	Egghead Discount Software	-2.38
American Info Techs Corp	3.88	Adobe Systems Inc.	2.25
Hewlett Packard Co.	3.88	BMC Software Inc.	-2.13
BGS Systems Inc.	3.75	Matsushita Electronics (L)	-2.00

[redacted]

Supply shortages cut rating

Compaq Computer Corp. (CPQ)
Downgraded from Buy to Neutral
Alex. Brown & Sons, Inc.

Citing Compaq's ongoing difficulties in meeting market demand, analysts Steven Eskenazi and Janet Regalia lowered the PC maker's rating to Neutral in a Nov. 4 report. Component shortages have kept Compaq from shipping enough of its low-cost ProLinea PC's. Alex. Brown also lowered its expectations for Compaq's fourth-quarter profit margins to about 26%. However, Alex. Brown said Compaq will continue to grow its market share and profitability in the near term.

Compaq's stock closed Thursday at 42, close to its 52-week high of 43.

Smooth transition

Legent Corp. (LGNT)
Upgraded from Neutral to Buy
Alex. Brown & Sons

Legent surprised Wall Street with strong fiscal fourth-quarter results, indicating a smooth acquisition of Goal Systems International, Inc. Alex. Brown also said Legent is benefiting from the current trends toward data center consolidations and buying large systems software from a single vendor. Analysts Chris Mortenson and Laurence Fong raised Legent to Buy status Oct. 29 and expressed confidence that the company will continue to grow at a healthy rate during the next fiscal year.

At Thursday's close, Legent's stock stood at 50¾.

Cloudy forecast

Sequent Computer Systems (SQNT)
Downgraded from Buy to Hold
Prudential Securities, Inc.

A Nov. 5 report lowered Prudential Securities' rating for Sequent, based on uncertainties about the European market — Sequent's traditional stronghold. Prudential Securities analysts also said the weakness of the dollar contributed to Sequent's strong third-quarter results.

Sequent closed at 14⅞ on Thursday.

—Derek Slater

[redacted]

Communications and Network Services — Up 1.65%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
OTC	24.00	9.63	3COM Corp (H)	23.13	1.63	7.56
NYS	70.63	56.25	American Info Techs Corp	67.25	3.88	6.11
NYS	47.63	32.88	AT&T (H)	47.63	2.13	4.67
OTC	4.25	0.75	Artel Communication Corp	1.08	-0.19	-14.96
OTC	22.00	10.25	Banyan Systems Inc	20.50	0.00	0.00
NYS	49.75	40.25	Bell Atlantic Corp	47.75	2.88	6.41
NYS	55.50	43.38	BellSouth Corp	49.75	2.25	4.74
NYS	6.75	3.63	Bolt, Beranek & Newman	5.00	0.00	0.00
NYS	75.00	40.88	Cabletron Systems	75.00	5.00	7.14
OTC	31.00	17.75	Chipcom Corp	27.25	1.25	4.81
OTC	74.50	24.13	Cisco Systems Inc (H)	74.50	4.25	6.05
OTC	35.25	5.50	Compression Labs Inc.	14.00	0.25	1.82
OTC	3.38	0.88	Data Switch Corp	1.88	-0.38	-16.67
NYS	23.63	13.75	Digital Comm. Assoc.	17.13	0.63	3.79
OTC	15.25	7.50	Digital Systems Int'l Inc.	11.75	-0.50	-4.08
OTC	19.25	3.63	DSC Communications	18.50	0.50	2.78
OTC	10.88	4.75	Fibronics Int'l Inc.	6.13	0.38	6.52
OTC	37.50	10.50	FileNet Corp	21.00	0.25	1.20
OTC	3.38	1.13	Gandalf Technologies Inc	1.75	-0.25	-12.50
OTC	2.25	0.69	Gateway Communications	1.38	0.19	15.74
NYS	5.50	2.38	General DataComm Inds	4.63	-0.13	-2.63
ASE	5.88	0.94	Go Video	2.88	0.08	2.14
NYS	35.75	28.88	GTE Corp	34.75	0.63	1.86
NYS	70.63	50.00	ITT Corp.	70.63	2.63	3.86
OTC	38.25	26.50	MCI Communications Corp	38.25	2.25	6.25
OTC	14.25	2.75	Microcom Inc	4.38	0.00	0.00
NYS	18.25	9.50	Network Equipment Tech	10.00	-0.75	-2.44
OTC	25.50	8.00	Network General	16.63	0.00	0.00
OTC	20.00	8.50	Network Systems Corp	14.88	-0.38	-2.46
OTC	30.63	5.63	Newbridge Networks Corp	30.63	2.63	9.38
NYS	49.25	30.50	Northern Telecom Ltd.	42.00	2.88	7.13
OTC	33.50	22.50	Novell Inc. (H)	31.25	-1.13	-3.47
NYS	88.38	69.13	Nynex Corp	82.00	2.13	2.66
OTC	37.50	14.50	Octel Communications Corp	21.88	1.38	6.21
OTC	9.88	1.38	Penril DataComm Ntwks	4.13	0.25	-5.75
OTC	53.00	10.25	PictureTel Corp	25.50	1.25	5.15
OTC	18.75	7.00	Proteon Inc	9.75	-0.88	-8.64
NYS	36.38	13.88	Scientific Atlanta Inc (H)	36.38	2.63	7.78
NYS	20.50	56.25	Southwestern Bell Corp	69.13	4.75	7.38
NYS	26.38	20.75	Sprint Corp	25.50	-0.25	-0.97
OTC	22.13	4.88	Standard Microsystems Corp (H)	19.88	1.13	-5.38
OTC	67.50	15.25	Synoptics Communications (H)	65.00	0.50	0.78
NYS	40.00	32.88	U S West Inc	37.25	1.75	4.93
OTC	65.25	24.00	Wellfleet Communications (H)	65.25	6.50	11.06

PC's and Workstations — Up 2.24%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
OTC	10.50	3.50	Advanced Logic Research	4.75	0.50	11.76
OTC	70.00	41.50	Apple Computer Inc	57.75	1.75	3.13
OTC	24.50	11.25	AST Research Inc	18.25	0.75	4.29
NYS	19.25	6.75	Commodore Int'l	7.50	-0.13	-1.64
NYS	43.13	22.13	Compaq Computer Corp (H)	41.88	0.63	-1.47
OTC	37.88	15.00	Dell Computer Corp	35.25	-0.50	-1.40
OTC	7.75	0.88	Everex Systems Inc	1.36	0.08	4.72
NYS	34.63	21.25	Harris Corp	14.38	0.63	1.85
NYS	85.00	47.25	Hewlett Packard Co	60.75	3.88	6.83
NYS	29.75	14.13	Silicon Graphics	27.13	0.00	0.00
OTC	36.13	20.75	Sun Microsystems Inc	32.25	1.75	-5.15
NYS	31.75	22.25	Tandy Corp	27.50	0.63	2.33
NYS	11.13	5.00	Zenith Electronics	5.88	0.50	9.30
OTC	25.50	7.75	Zeos International Ltd	3.88	0.13	-3.13

Large Systems — Off 1.34%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
ASE	20.63	7.75	Amdahl Corp	8.00	0.00	0.00
NYS	16.38	4.75	Convex Computer	7.50	-0.25	3.23
OTC	15.25	1.88	Cray Computer	5.25	0.75	16.67
NYS	49.50	19.00	Cray Research Inc	21.50	0.13	0.58
NYS	18.13	7.13	Data General Corp	11.50	1.50	15.00
NYS	65.50	32.13	Digital Equipment Corp (L)	32.13	2.00	5.88
NYS	100.38	62.00	IBM (L)	62.00	7.63	4.08
OTC	13.75	5.50	Kendall Square Research	10.29	1.25	10.67
NYS	119.25	83.00	Matsushita Electronics (L)	85.00	-2.00	-2.30
OTC	17.50	6.00	Pyramid Technology	10.75	0.25	2.38
OTC	17.88	9.88	Sequent Computer Sys	14.25	0.88	-5.79
OTC	18.38	7.75	Sequoia Systems Inc	3.50	0.00	0.00
NYS	54.25	29.50	Stratus Computer Inc	14.00	1.25	3.55
NYS	15.13	9.50	Tandem Computers Inc.	13.88	0.75	5.13
NYS	11.75	3.63	Unisys Corp	8.63	0.25	-2.82
ASE	7.50	0.25	Wang Labs Inc (L)	0.44	0.06	-12.40

Software — Up 1.08%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
OTC	68.50	25.25	Adobe Systems Inc	31.75	2.25	6.62
OTC	44.25	10.25	Aldus Corp	18.25	0.50	3.17
OTC	19.75	7.00	American Software Inc.	10.25	0.00	0.00
OTC	20.00	9.75	Ask Computer Systems	16.75	-0.50	-2.50
OTC	56.50	23.25	Autodesk Inc (H)	49.75	4.25	7.87
OTC	37.75	3.75	Bachman Info. Systems	5.63	0.38	-6.25
OTC	42.50	32.00	BGS Systems Inc	42.00	3.75	9.80
OTC	79.00	37.75	BMC Software Inc	64.88	2.13	3.17
OTC	25.50	13.00	Boole & Babbage	22.50	0.25	1.12
OTC	86.75	24.00	Borland Int'l Inc (L)	24.00	6.13	20.33
OTC	10.50	3.63	CE Software	4.25	0.00	0.00
ASE	25.75	9.16	Cheyenne Software Inc	27.50	-1.50	-3.17
OTC	13.13	5.63	Cognos Inc	7.13	0.00	0.00
NYS	19.50	8.63	Computer Associates	17.75	-1.38	7.19
NYS	12.38	4.75	Computervision Corp	5.88	0.63	-9.67
OTC	20.00	6.75	Comshare Inc	11.50	0.00	0.00
OTC	47.88	6.00	Easel Corp	11.50	2.38	26.03
OTC	25.00	11.50	Group 1 Software	13.00	1.75	-11.86
OTC	6.63	3.50	Hogan Systems Inc	5.63	-0.13	-2.17
OTC	36.25	18.50	Information Resources	30.25	3.25	12.04
OTC	32.75	5.88	Informix Corp (H)	32.50	2.00	6.56
OTC	22.38	11.50	Intergraph Corp	11.75	1.63	12.15
OTC	15.00	7.00	Interleaf Inc	13.25	0.63	4.95
OTC	20.25	10.25	Intersolv Inc	13.75	0.38	2.80
OTC	21.38	9.50	Knowledgeware Inc	14.88	-0.50	-3.25
OTC	50.50	28.75	Legent Corp (H)	49.75	0.75	1.53
OTC	38.75	14.75	Lotus Development	20.75	-0.25	-1.19
OTC	7.38	1.88	Meca Software	4.00	0.13	3.23
OTC	22.25	5.25	Mentor Graphics	8.25	0.00	0.00
OTC	38.25	27.25	Micro Focus (H)	37.50	-0.50	-1.32
OTC	20.50	6.50	Micrografx Inc	10.25	0.25	2.50
OTC	95.00	61.84	Microsoft Corp (H)	95.00	2.13	2.29
OTC	24.75	12.00	Oracle Corp (H)	22.25	-0.38	-1.88
OTC	55.25	20.13	Parametric Technology	54.25	0.88	1.64
OTC	11.00	3.50	Phoenix Technologies	6.50	1.50	30.00
OTC	25.25	11.23	Platinum Technology	20.50	0.75	3.80
OTC	58.50	25.00	Progress Software Corp (H)	58.50	1.13	1.96
OTC	26.63	4.88	Quarterdeck Office Sys.	5.75	0.13	-2.13
OTC	32.75	11.75	Rainbow Technologies Inc	22.00	-1.00	-4.35
OTC	22.75	4.00	Rasterops	7.50	-0.25	-3.23
OTC	27.25	3.63	Ross Systems	7.63	0.13	1.67
OTC	18.25	8.50	Sapiens USA Inc.	17.63	0.38	2.17
OTC	26.25	6.75	Software Publishing Corp.	9.73	-0.25	-2.50
OTC	8.00	2.00	Software Toolworks Inc.	5.88	0.88	17.50
OTC	7.25	0.75	Spinnaker Software	2.13	0.25	13.33
OTC	16.50	3.25	State of the Art	7.00	0.00	0.00
NYS	25.25	13.75	Sterling Software Inc.	20.00	0.13	0.63
OTC	30.00	8.00	Struct. Dynamics Research	12.25	-0.63	-4.85
OTC	45.25	16.25	Sybase Inc	42.25	1.50	-3.63
OTC	51.00	5.88	Symantec Corp.	12.50	-0.13	-0.99
NYS	15.50	5.25	Systems Center Inc	8.00	0.13	2.13
OTC	34.25	16.88	System Software Assoc.	33.88	3.13	17.83
OTC	13.25	2.50	Trinzic Corp	3.50	-0.13	-3.45
OTC	23.75	14.50	Walker Interactive Systems	22.50	1.00	4.65
OTC	5.38	1.38	Wordstar	2.06	0.25	13.79

Semiconductors — Up 2.91%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
NYS	21.50	7.38	Advanced Micro Devices	18.13	1.88	11.54
NYS	12.88	7.13	Analog Devices Inc (H)	12.50	0.38	3.09
OTC	15.13	6.75	Atmel Corp	13.13	0.88	6.14
OTC	14.13	3.25	Chips and Technologies	5.00	0.13	2.56
NYS	18.38	7.38	Cypress Semiconductor Corp	11.63	-0.11	1.08
NYS	14.25	6.75	Dallas Semiconductor (H)	14.25	1.25	9.62
OTC	70.75	39.75	Intel Corp (H)	70.25	1.50	2.18
NYS	9.88	4.88	LSI Logic Corp	8.88	-0.25	2.74
NYS	22.38	12.13	Micron Technology	19.88	-0.88	4.22
NYS	101.38	67.50	Motorola Inc.	99.88	1.38	1.40
NYS	14.13	5.25	National Semiconductor	13.13	0.63	5.00
OTC	27.00	8.25	Sierra Semiconductor	14.00	0.00	0.00
NYS	52.25	36.00	Texas Instruments (H)	49.50	-1.13	-2.22
OTC	10.50	6.00	VLSI Technology	7.38	0.13	1.72
OTC	7.00	2.13	Weitek	5.00	0.50	11.11
ASE	8.00	2.88	Western Digital Corp (H)	7.38	-0.25	-3.28
OTC	31.00	14.50	Xilinx	20.38	0.38	1.88
OTC	33.50	15.25	Zilog Inc.	31.50	2.75	9.57

Peripherals and Subsystems — Up 2.30%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
OTC	11.13	3.63	Archive Corp	11.13	0.88	6.54
OTC	26.75	13.75	Banctec Inc.	26.00	1.25	5.05
OTC	23.50	9.25	Cambex Corp	17.00	3.50	25.93
ASE	15.13	5.64	Cognitronics Corp	15.13	1.13	8.04
NYS	23.88	12.50	Conner Peripherals	19.88	-0.38	-1.85
OTC	24.88	14.25	Data Race Inc	21.75	0.50	2.35
ASE	19.64	4.75	Dataram Corp	11.13	-0.63	-5.32
NYS	31.00	8.63	EMC Corp (H)	29.50	-0.88	-2.88
OTC	8.50	4.75	Emulex Corp.	8.50	1.13	15.25
OTC	23.00	13.25	Evans & Sutherland	17.50	-1.00	-5.41
OTC	40.63	12.00	Exabyte	18.38	-1.75	8.70
OTC	36.88	15.75	Intelligent Info. Systems	34.00	1.13	3.47
OTC	11.75	4.75	Iomega Corp	8.50	0.38	4.62
OTC	34.75	10.25	IPL Systems Inc.	11.75	0.00	0.00
OTC	22.00	10.75	Komag Inc (H)	22.00	1.75	8.64
OTC	17.38	4.38	Maxtor Corp (H)	17.38	1.50	9.45
OTC	32.63	7.13	Micropolis Corp.	9.00	-0.25	-2.70
NYS	107.00	85.38	3M Corp	100.00	-3.00	-2.91
OTC	6.75	3.50	Printronix Inc.	5.75	0.50	9.52
NYS	18.00	6.88	QMS Inc	8.88	0.00	0.00
OTC	18.00	8.88	Quantum Corp.	14.50	-0.13	0.85
OTC	12.75	3.75	Radius Inc.	6.75	0.25	3.85
NYS	14.25	6.50	Recognition Equipment (H)	12.63	-1.13	8.18
OTC	13.88	5.63	Rexon Inc. (H)	12.75	-0.50	-3.77
OTC	19.00	7.75	Seagate Technology (H)	19.00	1.63	9.35
NYS	78.00	21.00	Storage Technology	21.00	-2.00	-8.70
NYS	22.88	16.50	Tektronix Inc.	20.75	0.13	0.61
NYS	82.25	80.75	Xerox Corp	77.13	0.75	0.98

Services — Up 0.49%

Exch	52 Week Range			Nov 20 3pm	Wk Net Change	Wk Pct Change
OTC	22.00	11.84	American Mgmt. Systems	21.75	1.25	6.10
NYS	5.38	3.00	Anacomp Inc	4.13	0.00	0.00
OTC	22.00	12.50	Analysts Int'l (H)	22.00	0.25	1.15
NYS	51.25	36.50	Auto Data Processing	50.50	0.38	0.25
NYS	17.25	7.06	Ceridian Corp	15.38	-1.13	-6.82
NYS	23.22	12.50	Comdisco Inc.	15.63	0.13	0.81
OTC	13.50	6.75	Computer Horizons	8.75	0.75	9.38
NYS	84.88	57.00	Computer Sciences	74.88	0.13	0.17
NYS	10.13	7.00	Computer Task Group	8.13	-0.13	-1.52
OTC	40.50	15.00	CompUSA Inc	36.00	2.63	7.87
OTC	19.79	6.00	Corporate Software	12.00	0.00	0.00
OTC	30.75	7.75	Egghead Discount Software	9.63	-2.38	-19.79
NYS	33.00	25.25	General Motors E (EDS)	30.50	1.50	5.17
OTC	30.38	6.25	Intelligent Electronics	9.13	0.25	2.82
OTC	14.88	6.63	Merisel	10.25	-0.25	2.38
OTC	15.75	5.75	Microage Inc.	7.88	0.13	-1.56
OTC	40.00	18.16	Paychex	38.25	-0.75	-1.92
NYS	78.50	55.00	Policy Management Sys. (H)	76.13	-1.63	-2.09
NYS	49.50	29.75	Reynolds and Reynolds	49.50	0.50	1.02
OTC	32.00	22.00	SEI Corp	28.00	0.25	0.90
OTC	26.38	16.88	Shared Medical Systems	21.50	0.63	2.99
OTC	30.00	16.00	Sungard Data Systems	27.75	0.23	-0.89
NYS	1.63	1.13	Ultimate Corp.	1.88	0.00	0.00

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Unisys back on road to black

By Thomas Hoffman
BLUE BELL, PA

■ After posting its fourth consecutive profitable quarter, Unisys Corp. appears to be making a bona fide financial comeback.

The company's return to profitability, however, came at the expense of revenue growth and was preceded by major bloodletting. Unisys reduced its head count by 37,000, closed 17 of its 26 commercial computer manufacturing plants and dramatically scaled back its product line.

Now the company is counting on a more focused business plan to help it start growing again. The once-mighty mainframe monolith is targeting the government, airlines, telecommunications and banking markets as it moves from a hardware orientation to one driven by software and services.

Success in this high-risk gambit is far from guaranteed, however. The company's services business is lagging far behind those of other hardware vendors such as IBM and Digital Equipment Corp., which have already repositioned themselves as software and services providers.

Rough road ahead

Moreover, Unisys faces tough competition from entrenched competitors Electronic Data Systems Corp. and Andersen Consulting, according to analysts.

"It's a tough area for Unisys. I don't know how they're going to get the business," said William J. Milton Jr., a financial analyst at Brown Brothers Harriman & Co. in New York.

Unisys remains undaunted. Adding to its traditional systems integration and management services, the company last month unveiled a program that combines professional services with maintenance services for multivendor environments.

Julie Schwartz, associate director of professional services at Dataquest/Ledgeway Group, a Framingham, Mass., services research firm, said the inclusion of a monthly billing system makes the program even more desirable to customers. "It has taken away a barrier many customers have had in buying professional services," Schwartz said.

Unisys is also bolstering its services ranks with experienced managers. The company recently recruited Victor E. Millar, a longtime executive at Andersen Consulting, as senior vice president of Unisys' worldwide Professional Services group. Millar's charter is to expand the company's systems integration and outsourcing business.

If anything, the company's return to profitability has bought it time — and investor confidence — which it needs to expand its software and service portfolio. Two weeks ago, Duff & Phelps upgraded its credit rating for Unisys Senior Notes from B-minus to B-plus, reflecting Wall Street's growing trust in the company's financial stability. And last week, the company announced that its Unisys Finance Corp., a wholly owned equipment financing subsidiary, had paid off the balance of a $300 million credit facility.

Reto Braun, Unisys president and chief operating officer, said the company's cost-reduction program is ahead of schedule. Last year, the company embarked on an ambitious cost-cutting program that Unisys Chairman and Chief Executive Officer James A. Unruh projected would save the once-troubled firm $800 million per year. Braun said the company achieved those savings in the first nine months of this year, or three months ahead of schedule.

Braun said the staff reductions adversely impacted customer support for a brief period, but he said the firm has since added customer support representatives.

However, customer support problems appear to have cost Unisys at least one valued client. Two years ago, America West Airlines in Phoenix decided to migrate from a Unisys 1100/94 mainframe platform to an IBM Enterprise System/9021-500 environment because of Unisys' unsettled financial status and a perceptible degradation in systems software development and support, according to Mike Shanks, America West's former systems manager. Shanks now oversees telecommunications at the airline.

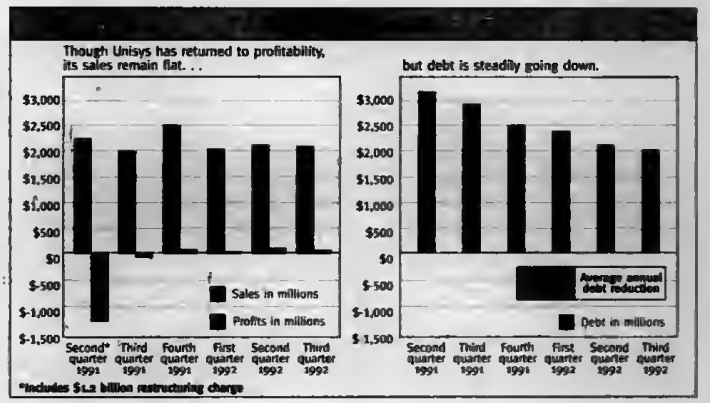
Long-term viability

"Our major concern was their ability to survive and continue enhancing their mainframe hardware and software products with proper support," Shanks said. He added that America West has not had a Unisys account representative in Phoenix for the past year.

But the vendor's financial turnaround has helped it retain and even expand some of its customer relationships. Last month, the Michigan Department of Social Services (DSS) awarded Unisys a $60 million contract to revamp its statewide networking platform. Norm Charles, the department's chief information officer, said DSS had been concerned about Unisys' financial condition for the past three years, when DSS was evaluating vendor proposals for the contract.

"During that period, Unisys had been in pretty dire straights. But our financial people and attorneys have been evaluating its financial position, and we're a lot more comfortable with their financial performance," Charles said.

DSS is comfortable enough, Charles added, to choose Unisys over IBM and Bull HN Information Systems, Inc.



Source: Unisys Corp.

In a nutshell

Unisys' commercial services revenue for the past year was $600 million, or one-tenth of DEC's revenue in that business.

Software and services currently make up 40% of overall revenue for Unisys, said Reto Braun, Unisys' president and COO. That figure includes workstation and server revenue.

Services revenue is growing at an 8% annual clip — below the industry average of 12% — but Braun said the firm is targeting 20% growth in this area.

The company reduced its debt by nearly $275 million during the third quarter. During the past 2½ years, Unisys has cut its debt by $1.8 billion, Braun said.

As part of its cost-cutting initiatives, Unisys has reduced its staff from 93,000 employees in 1988 to approximately 56,000 as of Sept. 30.

In Brief

HP profits drop

Weighed down by a $137 million restructuring charge, Hewlett-Packard Co. last week reported that fourth-quarter net profits declined 46%, to $68 million. The firm also blamed continuing pricing pressure, increased expenses and a shift to lower margin products for the profit plunge. Revenue for the period increased 13%, to $4.3 billion. For the year, HP earned $549 million on sales of $16.4 billion, compared with profits of $755 million and revenue of $14.5 billion in the year-earlier period.

Bachman revamps

Bachman Information Systems, Inc. is cutting 15% of its 340-member work force as it reorganizes product development into two business units: Application Development and Data Management. Both units will support international and North American operations. In the first quarter ended Sept. 30, the Burlington, Mass., applications tool vendor posted a $3.6 million loss on revenue of $8.1 million.

Net consolidation

Seeking to consolidate duplicate production facilities for its internetworking products, Network Systems Corp. in Minneapolis is laying off 65 employees, or 4.5% of its work force. The company intends to take a special fourth-quarter charge of $40 million to cover its restructuring costs.

Wang to sell plant

Wang Laboratories, Inc. plans to sell its PC manufacturing unit in Taiwan to a group of investors there in exchange for grace on a $150 million debt tied to the plant. The investors plan to form a company, which will operate under an as-yet undetermined name, that could manufacture Wang-labeled PCs, according to a spokesman at the Chapter 11-constrained company.

Wysiwyg

HACKER JARGON: CARGO CULT PROGRAMMING n. A STYLE OF (INCOMPETENT) PROGRAMMING DOMINATED BY RITUAL INCLUSION OF CODE OR PROGRAM STRUCTURES THAT SERVE NO REAL PURPOSE. FEATURECTOMY n. THE ACT OF REMOVING FEATURES FROM A PROGRAM. NASTYGRAM n. A PROTOCOL PACKET OR ITEM OF E-MAIL THAT TAKES ADVANTAGE OF MISFEATURES OR SECURITY HOLES ON THE TARGET SYSTEM TO DO UNTOWARD THINGS. WEENIX n. A DEROGATORY TERM FOR UNIX, DERIVED FROM UNIX WEENIES.

STUPID RESUME TRICKS

"On the back of one person's resume, there was a section for recommendations. In that space, the guy had a recommendation from his computer. It read: 'This man is a whiz at what he does and really knows my language.' I guess he thought it was cute. We tossed it."
Al Kahl
Senior programmer/analyst
Blue Cross/Blue Shield
Columbus, Ga.

In 1952, CBS News made computer history by using a computer — the Univac I — to predict the winner of that year's presidential election.

Do you have anecdotes about your users, your boss or your job? If so, please contact Lory Dix or Jodie Haze at (800) 343-6474. If we use your ideas, we'll send you a gift.

Sources: *Hundreds of Fascinating & Unique Ways to Use Your Computer* by Tina Rathbone (Computer Publishing Enterprises, San Diego); *The New Hacker's Dictionary*, edited by Eric Raymond (MIT Press).

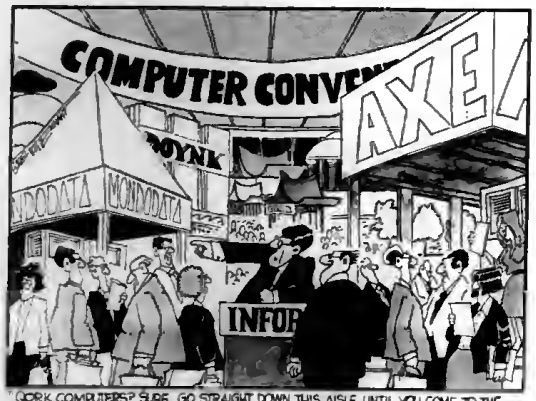
IT HAD TO HAPPEN

Compatibility Prober software assesses the compatibility of any two people in any relationship (friends, co-workers, lovers). The program tries to work out a "strategy to optimize" the relationship.

GREAT NAMES

Larry Cable
Data communications analyst
Fannie Mae
Washington, D.C.

The Fifth Wave



"GORK COMPUTERS? SURE. GO STRAIGHT DOWN THIS AISLE UNTIL YOU COME TO THE ARROW SYSTEMS DUDE RANCH BOOTH. THEN TURN RIGHT AND GO TO THE GIANT BUDDHA WITH A GUY BREAKING BRICKS WITH HIS FEET—THAT'S YAMAGAZI COMPILERS. GORK COMPUTERS IS THE SOUTH PACIFIC ISLAND EXHIBIT ON THE LEFT. BUT WATCH OUT FOR THEIR VOLCANO—IT'S DRIBBLING GOOP ALL OVER THEIR BROCHURES."

Inside Lines

Hold that eraser

A federal judge issued a temporary restraining order Friday that prohibits the outgoing Bush administration from erasing thousands of White House computer backup tapes when it leaves office. The order was sought by a research institute called the National Security Archive. The White House has argued that the tapes are not federal records and that erasing them is normal procedure. An identical dispute over the Reagan administration's backup tapes continues to drag on in the same Washington, D.C., court.

All ears

Computer Associates continues to make a concerted effort to heed the demands of its installed base. CA Chairman and Chief Executive Officer Charles B. Wang recently disclosed that the company has established a CIO council that will meet regularly with CA executives. During the past two years, CA has sponsored several two- to three-day seminars with 50 to 100 CIOs to gather customer input on issues ranging from pricing to administrative queries. Wang said he was not prepared to announce who will be on the 12- to 13-member CIO council, but he said the group plans to hold its first meeting in early February.

Say what?

Korean press representatives temporarily stunned Intel's Andy Grove at last week's Comdex/Fall '92 by telling him that the government of South Korea has decided to standardize on Pentium processors for its future minicomputer systems. "How on earth will you do that?" Grove asked. The reply was that the government intends this as a strategic plan. He then recovered and told a reporter, "Notice they said a Pentium-based minicomputer."

Document disabler

Early versions of Microsoft's Word for Apple's Macintosh Version 5.1 are experiencing some problems saving documents with headers and footers. When used after a "full save," the "fast save" option does not save headers and footers, company officials said. It does not affect any other data, however. Users may avoid the problem by disabling the "Allow Fast Saves" option under the "Tools/Preferences/Open and Save" menu item. Only copies of Word dated Oct. 10, 1992, are affected. Call Microsoft's customer service at (800) 426-9400 for a patch and more details.

Dual identity

While the PCMCIA card gets a lot of attention for use in portables, analysts such as Leslie Fiering at Gartner Group in Stamford, Conn., add, "You're going to see it on the desktop, too. It's the perfect solution to the two-standard problem in networking." That is because one PCMCIA Type 2 slot can simultaneously hold both an Ethernet and a Token Ring adapter card. Another intriguing possibility for PCMCIA is combined software and hardware on a single card. German vendor Dr. Neuhaus is rumored to be working on a combo fax/modem card with both the fax/modem hardware and the communications software on it. A Dr. Neuhaus spokesman refused to comment.

A tad insecure?

All of the major systems vendors were doing it at Comdex. Windows NT ran virtually nonstop last week on machines from AST, Everex, DEC, NCR, ad infinitum. But at a seminar upstairs, John Gage, director of Sun's science office, named NT one of the "embarrassments of the '90s.... The thing has 3.5 million lines of C++, but it's not secure," he claimed.

The bankrupt Dunes Hotel in Las Vegas, which hosted many a PC watcher during Comdex, is gambling that dumb terminals connected to IBM AS/400 minicomputer hosts are the way to go. When asked whether he had any interest in connecting PCs to minis or in PCs in general, the Dunes' IS director responded sharply, "Why should we go to PCs when terminals are fine?" The Dunes was recently bought by the owner of a rival hotel, The Mirage. Rumor has it The Mirage plans to level the Dunes, save an 18-hole golf course. Phone, fax or CompuServe News Editor Alan Alper with news (or golf) tips at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 820-8555.

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